

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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LONDON, SATURDAY, DECEMBER 23. 1876.

WITH SUPPLEMENT PRICE SIXPENCE PER ANNUM, BY POST, £1 4s.

MR. JAMES H. CROFTS, STOCK AND SHARE BROKER,
AND MINING SHARE DEALER,
No. 1, FINCH LANE, CORNHILL, LONDON, E.C.
ESTABLISHED 1842.

BUSINESS transacted in all descriptions of MINING Stocks and Shares (British and Foreign), Consols, Bonds (Foreign and Colonial), Railways, Miscellaneous, Insurance, Assurance, Telegraph, Shipping, Canal, Gas, Water, and Dock Shares.

BUSINESS negotiated in Stocks and Shares not having a general market value. BUSINESS in COLLIERY and IRON Shares, and in the principal WAGON and MANUFACTURING COMPANIES OF THE NORTH OF ENGLAND AND SCOTLAND.

BUSINESS in all the principal COTTON SPINNING SHARES. MR. J. H. CROFTS, having now established CORRESPONDING AGENCIES in all the CHIEF TOWNS of the United Kingdom, is prepared to deal in the various LOCAL Stocks and Shares at close market prices.

Accounts opened for the Fortnightly Settlement.

Bankers: City Bank, London; South Cornwall Bank, St. Austell.

SPECIAL DEALINGS in the following, or part:—
25 Argentine, 25s. 25s. 100 Prince of Wales, 5s.
25 Aberdaunt, 12s. 25s. 25s. 5 Roman Grav., £14.
25 Asheton, 25s. 25s. 25s. 70 Rookhope, 19s.
25 Baupfild, 12s. 25s. 25s. 1 So. Caradon, £120.
25 Belstone, 25s. 25s. 25s. 25 So. Condurow, £7 1/2.
25 Colorado, 20s. 25s. 25s. 25 South Croft, £10 1/2.
25 Cathedral, 25s. 25s. 25s. 25 Tankerville, £9.
25 Carn Brea, £39. 25s. 25s. 25s. 30 Talbont.
25 Cedar Creek, 15s. 25s. 25s. 25s. 5 Tincroft, £20 1/2.
25 Chontales, 8s. 25s. 25s. 25s. 25 Van Consols, £1 18s 9d.
25 Dolcoath, £40 1/2. 25s. 25s. 25s. 50 W. Tankerville, £1 17s 6d.
25 Dore, £37 1/2. 25s. 25s. 25s. 10 W. Chiverton, £19.
25 Devon Consols, £4 1/2. 25s. 25s. 25s. 1 West Tolgus, £34.
25 Don Pedro, 7s. 6d. 25s. 25s. 25s. 15 North Laxey, 12s. 6d.
25 East Van, £10 1/2. 25s. 25s. 25s. 10 West Craven Moor.
25 East Chiverton. 25s. 25s. 25s. 25s. 10 Parys Mount, 12s.
25 East Caradon, 23s. 9d. 25s. 25s. 25s. 10 Wheal Grenville, 25s.
25 Exchequer, £2 1s. 3d. 25s. 25s. 25s. 25s. 10 Wheal Uny, £2 1/2.
25 Eberhardt, £8 1/2. 25s. 25s. 25s. 25s. 50 Wheal Agar, £2 5s.
25 East Pool, £12. 25s. 25s. 25s. 25s. 40 Pennerley, £1 5s.
25s. 25s. 25s. 25s. 15 Richmond, £3 18s. 3d.
25s. 25s. 25s. 25s. 10 Wh. Crebor, £3 1/2.
* Shares sold for forward delivery (one, two, or three months) on deposit of 20 per cent.

SPECIAL BUSINESS in POSITIVE ASSURANCE SHARES.
Business on hand in all the principal TIN, COPPER, and LEAD SHARES.

AQUARIUM, HOTEL, AND MISCELLANEOUS SHARES.—
SPECIAL BUSINESS in Brighton Aquarium, Royal Westminster Aquarium, Langham Hotel, Inns of Court Hotel, Queen's Hotel (Norwood), Milner's Safe, Milford Docks, Newcastle Chemical, Lawes Chemical, North-Eastern Banks.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

COAL AND IRON SHARES.—BUSINESS in all the PRINCIPAL SHARES and DEBENTURES.

FOR SALE:—
25 Alltarn, 25s. 25s. 25s. 25s. 20 New Shariston Pref., £4 1/2.
25 Bilson, 25s. 25s. 25s. 25s. 10 ditto 7 1/2 p. c. Deben., £4 1/2.
25 Cardiff and Swansea, 25s. 25s. 25s. 25s. 25 Newporth Aber., £4 1/2.
25 Cakemore, 25s. 25s. 25s. 25s. 20 Thorp's Gawber, £2 1/2.
25 Chillington, 25s. 25s. 25s. 25s. 25 West Cumberland.
25 Pelsall, 25s. 25s. 25s. 25s.

COAL AND IRON.
25 Darlington, 25s. 25s. 25s. 25s. 25 West Cumberland.
25 Pelsall, 25s. 25s. 25s. 25s.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.

COTTON SPINNING SHARES.—BUSINESS in all OLDHAM SHARES, and in those of other DISTRICTS.

SPECIAL BUSINESS in the following:—
Name of Mill. Nom. amount. Last quarterly dividends. Closing quotations.

Central Spinning ... £ 5 ... £2 10 0 ... 30, 20, 10 ... £ 3 1/2, £ 4
Greenacres ... 5 ... 4 0 0 ... 30, 20, 5 ... 5, 5 1/2
Green Lane ... 50 ... Fully paid ... 30, 25, 20, 25 ... 80, 85
Royton ... 5 ... 2 0 0 ... 35, 30, 20, 10 ... 2 1/2, 3 1/2
Shaw ... 5 ... 2 10 0 ... 12 1/2, 20, 16 ... 2 1/2, 3 1/2
Star ... 5 ... 2 10 0 ... 17 1/2, 25, 20, 20 ... 2 1/2, 3 1/2
Twist ... 5 ... Fully paid ... 32, 25, 13 ... 2 1/2, 3 1/2
Windsor ... 5 ... 2 10 0 ... 30, 20, 10 ... 3 1/2, 3 1/2
* The accounts of all the above companies are made up and profits divided quarterly. JAMES H. CROFTS, 1, FINCH LANE, LONDON.

FOREIGN BONDS.—ARGENTINE.—EGYPTIAN.—RUSSIAN.

SPANISH, TURKISH. SPECIAL BUSINESS, and latest information.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

RAILWAYS.—SPECIAL BUSINESS. Fortnightly accounts opened on receipt of the usual cover.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.

PANDORA MINE (LEAD.—CARNARVON).—SPECIAL BUSINESS in these Shares.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.

MR. WILLIAM H. BUMPUS, STOCK AND SHARE BROKER,

44, THREADNEEDLE STREET, LONDON, E.C.
[Established 1867.]

SPECIAL BUSINESS, at close prices, in the SHARES of all the principal HOME and FOREIGN MINES.

Mr. BUMPUS directs particular attention to MINING INVESTMENTS, and is in a position to give reliable information and advice respecting the same.

FOR SALE, at prices annexed:—
50 Aberdaunt, 12s. 6d. 15 Eberhardt, £8 1/2. 15 Richmond, £3 18s. 3d.
25 Argentine (Gold). 50 Frontino, 31s. 3d. 50 Roman Gravels, £14 1/2.
25 Blue Tent. 50 I. X. L., 21s. 6d. 50 Rookhope, 19s. 6d.
40 Condes of Chili. 20 Javali, 11s. 6d. 50 Tankerville, £2 1/2.
10 Cargill, £5. 20 Kapanga, £4 13s. 9d. 5 Van, £39.
50 Don Pedro, 8s. 6d. 10 Leadhills, £4 1/2. 30 Van Consols, 38s.
25 Dore, £37 1/2. 100 Malabar, 7s. 6d. 60 Wheal Grenville.
50 Exchequer, 44s. 6d. 75 Penrith, 9s. 9d. 10 Wye Valley, £3 1/2.
25 East Caradon, 25s. 20 Pennerley, 24s. 6d. 20 Wheal Crebor, £2 18s 9d.
10 East Vaa, £10 1/2. 100 Parys Mount, 11s. 6d. 50 W. Godolphin, £2 1/2.
Buyer of 50 West Tankerville, at £1 1/2.

IMPORTANT.

To Capitalists, and all who seek SOUND and PROFITABLE INVESTMENTS, the following are particularly recommended, and are worth the SPECIAL ATTENTION of every Investor, viz:—

ARGENTINE COMPANY (LIMITED). CONDES COMPANY OF CHILI (LIMITED). BLUE TENT HYDRAULIC GOLD MINES (LIMITED).

The regularly published Reports from the above are sufficiently remarkable in themselves, and clearly prove the extraordinary value of the Properties. These are NO SPECULATIONS, but SOUND INVESTMENTS of unusual merit, and, as such, they will shortly occupy very prominent positions in the Market. The Shares are certain to have a great rise, and large Dividends may be confidently expected at an early date. Intending Investors should, therefore, secure an interest at once. Full particulars of the Mines, and every information concerning the several Companies, may be obtained on application to MR. BUMPUS, who has special facilities for dealing in the shares.

* See Leading Article on the Argentine Company in the "Money Market Review" of the 16th inst.

WILLIAM HENRY BUMPUS, SWORN BROKER.

Office: 44, Threadneedle Street, London, E.C.

Business transacted in Stock Exchange Securities and Miscellaneous shares of every description. Fortnightly accounts opened. References given and required when necessary. A Stock and Share List forwarded free on application.

BANKERS—THE NATIONAL PROVINCIAL BANK OF ENGLAND, E.C.

MR. THOMAS THOMPSON, JUN., 1, PALMERSTON BUILDINGS, BISHOPSGATE STREET, LONDON, E.C.

MR. THOMPSON strongly recommends the purchase of the shares of the CHAPEL HOUSE COLLIERY COMPANY (LIMITED) for investment. This company, notwithstanding the stagnation in trade, clears a profit of 2s. per ton on its coal, and when the new works are completed he present handsome returns will be much augmented.

DIVIDED LEAD MINE INVESTMENTS,
PAYING 8, 10, TO 12 PER CENT. PER ANNUM ON PRESENT PRICES: and
10, 20, 50, TO 75 PER CENT. PER ANNUM ON CAPITAL OF COMPANIES.

EVERY information respecting HOME and FOREIGN LEAD MINES and SHARES may be obtained of—

MESSRS. PETER WATSON AND CO.,
STOCK AND SHARE DEALERS,
54, OLD BROAD STREET, LONDON, E.C.

MR. ALFRED E. COOKE, STOCK AND SHARE DEALER,
76, OLD BROAD STREET, LONDON, E.C.
(Established 1853.)

Transacts every description of Business in ENGLISH FUNDS, RAILWAY STOCKS, and MISCELLANEOUS SHARES.

SPECIAL ATTENTION GIVEN TO MINING ENTERPRISE.

TRADING COMPANIES' SHARES (including COTTON SPINNING) dealt in at close prices.

COLLIERY SHARES dealt in on best terms.

SHARES in NEGLECTED and DEPRECATED SECURITIES dealt in.

Every description of STOCKS and SHARES, either for INVESTMENT or SPECULATION, BOUGHT and SOLD at net prices.

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MR. JAMES STOCKER, STOCK AND SHARE BROKER,
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[Established 1848.]

BUSINESS transacted in all kinds of STOCK EXCHANGE SECURITIES, also in every description of BRITISH and FOREIGN MINING, COLLIERY, MANUFACTURING, and other SHARES.

SPECIAL BUSINESS in the following:—

Leadhills, £6 1/2. Pennerley, 24s. Glyn, 46s.
East Van, £10. Rookhope, 18s. Llanrwst, £2 1/2.
Tankerville, £5 1/2. Penrith, 9s. 9d. Combarin, 9s.
Great Laxey, £20. Ladywell, 31s. Aberdaunt, 12s.
Roman Gravels, £14. Cathedral, 25s. West Asheton, 23s. 9d.
Derwent, £3 18s. 9d. North Laxey, 11s. 6d. Bampfild, 11s. 6d.
Asheton, 27s. 6d. Van Consols, 38s. Wheal Crebor, £3.
Devon Consols, £4 1/2. Glenroy, 33s. 6d. Tan-y-Bwlch.
Van, £39. Parys Mountain, 10s. 6d. Great West Van, 7s. 9d.
Goreu, 15s. Marke Valley, 28s. 9d. Wheal Grenville, 22s.
Chapel House, £3 1/2. West Tankerville, 38s. 9d. So. Prince Patrick, 15s.
So. Condurow, £7. Phosphate Sewage. W. Godolphin.
Richmond, £3 18s. 3d. Javali, 11s. 6d. I. X. L., 21s.
Eberhardt, £8 1/2. Port Phillip, 11s. 6d. Gold Run, 13s.
Frontino, 31s. 3d. Chontales, 7s. 9d. Don Pedro, 8s. 3d.
Exchequer, 44s. Malpas, 7s. 6d. South Aurora, 8s.
Flagstaff, 25s. Cedar Creek, 16s. Santa Barbara, £2 1/2.
Chicago, £6 1/2. Almaden, 4s. 6d. Rossa Grande, 9d.
N. Zealand Kapanga, £4 1/2. Tecoma, 9s. 9d. Sweetland Creek, 4s. 9d.

JAMES STOCKER, SWORN BROKER.

Consols, Foreign Bonds, Railways, Bank, Telegraph, Gas, and all miscellaneous Shares bought and sold, and fortnightly accounts opened for same. Shares sold for forward delivery on receipt of cover. List of prices and every information for wanted on application. References given and required when necessary.

BANKERS: LONDON AND WESTMINSTER.

MESSRS. W. J. TALLENTIRE AND CO., STOCK AND SHARE BROKERS,

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Transact business in Stock Exchange Securities and Mining Shares of every description, either for immediate cash or the usual bi-monthly settlements, and also afford advice personally or by letter to executors, trustees, capitalists, and investors of every class in the selection of Securities for safe and profitable investment, their experience of the markets, extending over a period of more than sixteen years, together with special facilities for acquiring information, enabling them to act beneficially for clients.

They have established Corresponding Agencies in all the principal towns of the United Kingdom, and are prepared to deal in the various local Stocks and Shares at close prices. Orders per post or telegraph receive prompt attention.

INVESTORS SHOULD APPLY for a copy of Messrs. W. J. TALLENTIRE and Co.'s Circular, SENT POST FREE. It contains valuable information on Foreign Stocks (especially South American, Egyptian, and Turkish), Railways, and Lead Mines.

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38, CORNHILL, LONDON, E.C.
Established 18 years.

WHEAL CREBOR shares are specially recommended for a great and early rise. The 100 east is opening a new run of ore ground now worth 2 1/2 p. fathom. The 120 east is fast approaching under, with the strongest indications that a great course of copper is before it. There is every probability of these shares advancing to a high figure.

MR. W. MARLBOROUGH, STOCK AND SHARE DEALER,

29, BISHOPSGATE STREET, LONDON, E.C. [Established 20 Years]

can sell the following SHARES, at prices annexed:—

10 Alltarn. 40 I. X. L., 19s. 3d. 150 Port Phillip, 12s.
50 Chontales, 7s. 3d. 50 Javali, 11s. 6d. 30 Pennerley, £1 7s.
30 Cedar Creek, 16s. 20 Leadhills, £6 1/2. 50 Parys Mount, 12s.
10 Chicago, £6 1/2. 25 Marke Valley, £1 7s. 6d. 200 Prince of Wales, 5s.
20 Dore, £37 1/2. 30 Malabar, 7s. 6d. 40 Rookhope, 18s.
20 Don Pedro, 8s. 6d. 10 New Quebec, £3 15s 6d. 50 South Aurora, 8s.
10 East Van, £10. 30 North Laxey, 12s. 50 Santa Barbara, £2 1/2.
25 Exchequer, £2 1/2. 20 N. Zealand Kapanga, £4 1/2. 5 Tankerville, £2.
30 East Caradon, £1 6s. 3d. 50 Nant-y-Glo & Blaina, £3 1/2.
40 Frontino, 31s. 3d. 20 Pennerley, £1 7s.
20 Glyn, £2 6s. 3d. 30 S. Roman Grav., 12s.
15 Glenroy, £2. 30 S. Tankerville, £2.
50 Goreu, 15s.

BODIDRIS.—Business either as a buyer or seller.

Shares Bought and Sold at net prices. Telegrams promptly attended to.

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ALL DESCRIPTIONS OF SHARES are dealt in, including BRITISH and FOREIGN STOCKS, and RAILWAY SECURITIES.

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MESSRS. H. HALFORD AND CO., STOCK AND SHARE BROKERS,
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Strongly recommend the ABOVE MINE as one of the BEST and SAFEST MINING INVESTMENTS. The dividends are declared half-yearly—the one for the last half year was 12 1/2 per cent.; the next one will probably be 20 per cent. The "reserves" are valued at £300,000. Every information upon application to the above.

Daily Closing Price Lists of Mines and all other Securities sent post free on application.

Messrs. H. H. and Co. are BUYERS of Shares in GROGWINION MINE, and also of Shares in WYE VALLEY LEAD MINE; and they will be GLAD to HEAR from BROKERS or DEALERS who have ANY FOR SALE.

NOTICE.

BROKERS OR DEALERS HAVING SHARES FOR SALE

in either GROGWINION or WYE VALLEY MINES can FIND IMMEDIATE PURCHASERS on application to—

H. HALFORD AND CO., STOCK AND SHARE BROKERS, EXCHANGE CHAMBERS, CHANGE ALLEY, LOMBARD STREET.

MR. EDWARD ASHMEAD, 62, CORNHILL, LONDON,
LONDON MINING AGENT, ACCOUNTANT, AND AUDITOR.

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Derwent	3 1/2 .. 4	Penrith	9s. .. 10s.
Devon Great Consols	4 1/2 .. 4 1/2	Plunlimmon	5s. .. 6s.
Don Pedro	7s. .. 8s.	Richmond	£ 8 1/2 .. £ 8 1/2
Eberhardt	8 1/2 .. 8 1/2	Roman Gravels	13s. .. 14s.
East Caradon	1 .. 1 1/2	Rookhope	17s. .. 18s.
East Van	9 1/2 .. 10	Santa Barbara	2 1/2 .. 2 1/2
Exchequer Gold	2 .. 2 1/2	San Pedro	1 .. 1 1/2
Frontino	1 1/2 .. 1 1/2	Sierra Butaca	1 1/2 .. 1 1/2
Glenroy	1 1/2 .. 1 1/2	South Condurow	6 1/2 .. 7
Glyn	2 1/2 .. 2 1/2	So. Roman Gravels	10s. .. 12s. 6d.
Great Laxey	19 1/2 .. 20	Tankerville	8 1/2 .. 8 1/2
Javali	10s. .. 11s.	Tincroft	20 .. 21
Ladywell	1 .. 1 1/2	Van	38 .. 39
Leadhills	6 .. 7	Van Consols	1 1/2 .. 1 1/2
Marke Valley	1 1/2 .. 1 1/2	West Asheton	1 .. 1 1/2
New Quebec	10s. .. 12s.	West Chiverton	18 .. 19
New Zealand Kapanga	4 1/2 .. 4 1/2	Wheal Crebor	1 1/2 .. 1 1/2
Parys Mountain	10s. .. 11s.	Wh. Grenville (call p.)	2 1/2 .. 3
Pennant	5 .. 6	Wheal Jane	2 .. 3
		Wheal Uny	2 .. 2 1/2

MR. WILLIAM WARD, STOCK AND SHARE BROKER,

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MISCELLANEOUS.—Milner's Safe, Hooper's, Pawson, Hudson Bay, Diamond Rock, Tramway Companies.

MINING.—Cedar Creek, Don Pedro, Gold Run, Rookhope Valley, Pennant, Pateley Bridge.

Fortnightly Accounts opened on the usual terms; one or two good opportunities at the moment.

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No. 7, NEW BROAD STREET, LONDON, E.C.

The "Investment Circular and Financial Record" for December may be had gratis and post free on application.

MESSRS. A. ENDEAN, FISHER, AND CO., STOCK AND SHARE DEALERS,

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Bankers: London and Westminster, Lothbury.

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The present prospects, and the discoveries made, are guarantees of its future prosperity. Those who wish to invest in one of the prizes of the day should communicate with us at once. Prospectus and map forwarded on application.

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Bankers: London and Westminster, Lothbury.

FOR SALE, each, for cash (or part)—20 Glyn, 45s.; 25 Van Consols, 38s. 9d.; 50 Pestarena, 4s. 3d

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NEW YORK: 44¹/₂, Broome-street.

Royal School of Mines.

PROF. SMYTH'S LECTURES ON MINING—No. LIX.

[BY OUR SPECIAL REPORTER.]

We come next to a part of our subject which at first appearance is not of a very interesting character, but when looked into it is found to contain a great deal which is interesting, although beset with multitudinous details and with great variety of apparatus, either brought into use in different districts, or patented and never brought into use. It will be my object to day to put before you a sort of division and grouping which will enable you to see what are the principal features of the apparatus next following on the comminution of the ore; leaving to the next lecture the consideration of the methods of dealing with the gravels and coarser sands, such as are produced by the crusher, and which as a rule require to be treated in a different manner. We may, therefore, pass to the consideration of the methods of enriching or concentrating the divisions of the ore, which are of the nature of fine sand down to excessively fine slime, produced by the stamps, and having passed through sieves of suitable dimensions. It has long been a desideratum to divide the stuff as it comes from the stamps more accurately, because if you have a material composed of particles of very varied sizes it is a matter of great difficulty to separate the parts by virtue of specific gravity. A reference to Agricola's book will show that hundreds of years ago great care had been bestowed on arrangements for exposing the ore to a flow of water, which shall deposit the material in positions according to its specific gravity, and thus giving the heaviest and most valuable material a chance to be deposited at the upper end of the bed. This may be paralleled by the simple arrangement in Cornwall for dressing the stream tin, where the material is thrown on a plane surface, slightly inclined, and a stream of water then allowed to flow over it. The larger portions are picked out and examined by the eye, the useless being thrown away, the promising ones being put aside, perhaps for the stamps. Meanwhile the smaller sized material will be carried on by the water, and at the end of this plane will be directed by a hanging board into a box, or "tye," below, where it will run down a gentle slope, and holes in the lower end of this box, as it tends to fill with sediment, will be plugged up. When you come to examine the deposit the most valuable mineral will be found in the upper part of the tye, while that at the other end, or tail, will perhaps not be worth any further treatment. On this principle, more or less, will be founded the whole series of apparatus which we have to examine to day. The material coming out of the coffer of the stamps runs first down a sloping bed, which will not retain anything on it, and then on to the less inclined beds, where the mineral is to be deposited. It becomes an important question as to whether you cannot save something by mechanical means on the first bed, and this it is possible to do in some cases, where fragments or strings of native metal, gold, &c., occur. This may be done by placing bul's hides with the hair pointing up the bed, as in the Brazilian mines, these being taken up and washed separately every few hours, and a good proportion of best gold is thus obtained. In other cases coarse flannel, canvas, &c., specially made, or (as the Wallachians do) turfs have been used for the same purpose. Where there is nothing to catch in this manner, as in the case of the tin stamps, it is usual to run the material out into a series of tyes, placed at a very small angle, which varies according to the nature of the material. Sometimes when a specially rich part of a vein is cut the heavier mineral may be deposited so soon as to choke up the passage, so that a special box, called a "saver," is placed horizontally at the outlet to save the material. This apparatus does not give you such a division, according to size, as is desirable, so that an apparatus has been devised by Rittinger which seems to have done very good service in the Hungarian mines. The water carrying the stamped material is made to flow through a series of four boxes; these have sloping sides, such that no material will rest on them. The matter then deposited, in the first for example, falls to the bottom, and there passes through an opening into a siphon, the flow through which is regulated by a stop-cock; similarly with the other boxes. To extract the material it is only necessary to open the stop-cocks, and allow a small stream of water to flow through the siphon, which will carry out the deposit, and may take it at once to the inclined planes, thus avoiding any necessity for interrupting the main flow for the purpose of removing the sediment. Under various modifications this machine has been employed in the Harz, Saxony, and Hungary, and the general testimony is that the division of the sediment according to size in this way gives greater facility in the subsequent processes. In our own tin mines in Cornwall something of the same kind has been in use, where the water runs into conical sheet-iron vessels, and is made to circulate as to form a kind of whirlpool, and in this way you may have the whole of the rougher part deposited, and only the slime flow away. This then can be allowed to accumulate, or, what is better, be led off at once to the dressing troughs.

The apparatus employed for dressing is to be looked upon mainly as an inclined plane, generally of wood, though of late years glass has been employed, in some cases sheet or cast iron, and in Austrian mines slabs of marble. A mixed stream of pulverised mineral and water being sent over such an inclined plane, the forces acting upon the mineral will be—first, the impetus of the water, which will depend upon the quantity of water, and the area of the surface over which it flows; secondly, gravitation, which will cause each particle to exercise a pressure on the plane; thirdly, there will be the resistance due to friction, which will vary according to the nature of the material used; and, lastly, there will be the cohesion of the particles amongst themselves, which will be much greater in the case of ores associated with argillaceous matters than when quartz is the accompanying material. We may divide these machines into two classes, those which have a fixed inclined plane, and those which have a moveable one. The former class, which will be treated of in this lecture, may be again subdivided into "buddles," or those which are intended to receive a thick deposit; and "frames," or tables, which receive only a thin deposit. The nature of the plane itself will have far more influence in this latter class than in the former. As an example of the simplest form of buddles we may take a common form, much used in the North of England and in our western districts, not so much employed now as it was a quarter of a century ago, but which may readily be put up, and, what is important, in which there is very little fear of loss of mineral. It consists of a pit 8 to 12 ft. long, usually lined with timber, while above the pit, inclined at a considerable angle, is a head board, down which the water and ore run to the pit. Sometimes a series of pegs are arranged on this head board, which can be turned about so as to regulate and evenly distribute the flow over the board. And in these cases, too, there may be at the top of the channel a head button, which can be arranged to direct the stream either to the right or left side of the head board, so that one side may be in use while the other is being cleaned. A less satisfactory arrangement may be often seen, especially in some of the small lead mines in the North, where there is what is called a "nicking board." A quantity of ore, in the shape of a thick mud or clay, is placed on the head board, and an attendant allws the water from above to flow over the board by nicking the mass of ore with a shovel or hoe in parts,

so as to regulate the flow, and allow it constantly to carry away some of this material in suspension. The water is made to flow in a series of waves, and not in a direct manner, out of the buddle, lest it tend to make a series of channels, instead of spreading in a thin broad film. By stopping up holes at the end of the buddle with pegs, as in the tye previously described, it will be arranged always to have a tail of water at the bottom end. Care must be taken, as deposit after deposit is formed thickest at the upper end, that the slope does not become too great, and so a quantity of the stuff pass down to be lost; the deposit must not, therefore, be kept till too high. When it has reached 12 to 18 in. the flow is stopped, and the sediment is taken up, generally in three parts, that nearest the top being the richest—"heads," the "middles," and lastly "tails." It depends on the character of the material as to whether this last is worth further treatment. An attendant on a transverse bar across the pit, with a besom or hoe, keeps working up against the current of water on the head board, so as to clear away slime, and prevent irregularities. Where the head board with a series of pegs is used the pulverised ore is mixed up with the water, either by a shovel or machinery, and then after passing through a grating, to stop chips or large stones which may have got in, it is fed through a hopper on to the head board; the rest of the arrangement is like that with the nicking board. About 30 years ago it was suggested that a great deal of manual labour was expended on this apparatus, and that little work was got through in a given time. Hence a—the object in the western districts was to get through as much material as possible, and thus be enabled to dress varieties of ore which otherwise they could not work, the method of treatment by a circular buddle came into play. In the ordinary buddle there is a circular bed, 12 ft. by 18 ft. diameter, sloping gently towards the circumference, and surrounded by a wall. In the centre is a circular area of some 6 ft. diameter, with sides sloping more steeply than the bed of the buddle. On to this table the mixed ore and water is delivered from a sheet-iron hopper, in which it is carried, and this is made to revolve on a vertical axis. The axis also carries a series of cross bars, to which are suspended rods of wood, or a series of light brooms of heather, or such material, or brushes, or it may be flaps of canvas, according to the quality of the mineral. These spread the ore evenly over the floor, but they must be raised from time to time as the deposit goes on, in order that they may not interfere with the material deposited, and thus lead to waste, but only lightly scrape the surface, so as to prevent the formation of channels. The mixed material, poured on to the upper inclined plane which we may regard as the head board, will run down on to the floor of the buddle, and there deposit the sediment in the form of heads, middles, and tails. In what are known as slime buddles a horizontal shaft carries a series of knife blades, which cut up the material, then on a second axis a set of vanes, which beat the water and mix up the material with it; and on a third axis a series of brushes, which as they revolve sweep over a series of small-holed grates, through which the mixed material passes to the inclined planes, and thus clear the grates of stones, &c. An additional set of vanes may be added if necessary, to strike the water, and cause it to flow in a series of waves. A much rougher kind of buddle is used by the slime dressers, where instead of having a raised central table the mixed water and slime is allowed to fall from a trough directly on to the centre of a prepared circular space. As a general rule the buddles will be 12 to 18 ft. diameter, and very few exceptional cases pass beyond that; but perhaps the largest buddles in the world are those in the parish of St. Just, in Cornwall, which are not less than 50 ft. diameter. The best diameter of the central portion is still a matter of uncertainty; some have it only 2 ft. diameter, other dressers think it should be half the diameter of the buddle. As this part is not intended to catch any material it will depend very much on the thickness of the material mixed with the water how far it is desirable to spread it before the sediment begins to be deposited; as a general rule it will be 4 to 6 ft. diameter. The much greater quantity of work which can be got through with these circular buddles than with the old rectangular ones is one reason for the adoption of the former, and the decreased number of the latter form now in use. Of variations we have the concave buddle, introduced by Hundt, of which many examples are to be found at work in our mines as well as in continental districts. In this the inclined plane is placed in the opposite direction, that is to say, it slopes towards the centre, and the material is given out by a series of spouts round the circumference, and an arrangement is placed in the centre to prevent water going out with too much of a rush. A series of brushes are constantly going round and sweeping the surface as in the other form. According to some dressers, from the facility with which a concentrated current towards the centre is obtained, washing away the debris very efficiently, this form is better than the other, and if there is much rubbish mixed with the mineral it may do very well; but there is a greater risk, and perhaps, also, some practical objection, seeing there are not so many of this form now, in comparison with the ordinary form of buddle, as there used to be.

The other class of machines, and perhaps the most striking, are those which have been in use for a long time in Germany, and especially Saxony, for the treatment of their argentiferous ores. These are "tables," very carefully constructed, placed at a very low angle of inclination, with a grating to strain off chips and stones, and a head board with an arrangement for equalising the flow of water. In the use of these frames or tables it is necessary to have a supply of clean water to dilute down to a requisite point the material which has been mixed, delivered by means of a tap into the hopper or box, from which the material passes to the head board. In some of the Hungarian mines these frames are used 18 ft. to 24 ft. long, so that in these great lengths the whole of the valuable material is taken out. As usual in these processes an attendant with a wooden hoe rakes up against the flow of water during the deposition, and at length there comes a time when it is desirable to introduce the clear water. Accordingly the dirty water is stopped, and the clear water turned on, and then with a light brush or hoe, used very lightly, the attendant just sweeps against the flow, and thus a good deal of the mere slimy deposit is got rid of. Then the lower end of the deposit is removed, and afterwards the upper, sometimes by means of a trap-door in the centre of the frame, but more usually one portion after another is led down into little boxes placed at the end. The frame used in our western districts has dwindled away of late, but is still largely employed. The table itself is not nearly so long as in the foreign arrangement; the material flows over a flap on to this table. The latter is supported at top and bottom on pivots, in order that it may be turned sideways on these pivots for the purposes of clearing. When the bottom boards are covered with deposit the dirty water is stopped and the clean water let on, and when as much slime as possible is cleared off the table is turned sideways on the pivots, and a stream of water then used to wash down the deposit into boxes placed at the side. In consequence of the necessity of dressing at a very economical rate, a large number of modifications of this system have been employed of late. For example, the Red River which flows by Rehrath, in Cornwall, has been shown to carry away much valuable mineral as refuse from the mines, and self-acting frames have been arranged so as to allow the material to flow over them for a certain time, and then (by the filling of a trough with water, or other such method) the frame overbalances, and at the same time opens a tap, which lets on a stream of clear water to wash off the deposit into proper receptacles. All the machines we

have been considering in this lecture are for the treatment of the finer products of comminution, extending from the size of a coarse grain of sand down to the finest slime.

ROYAL SCHOOL OF MINES.

The fourth annual dinner was held at the Pall Mall Restaurant on Friday evening last; Dr. Taylor Smith in the chair. Profs. Stokes, Huxley, Tyndall, Ramsay, Smyth, and Guthrie, Mr. Trenham Reeks, as well as Mr. Abel, F.R.S., and Dr. D.S. Price were present. After the usual loyal toasts a testimonial, consisting of an étager and two side plateaux, was presented to Prof. Ramsay by Mr. Baerman, on behalf of past and present students of the School, on the occasion of his retirement from the Professorship of Geology. The treasurer, Mr. W. Chandler Roberts, F.R.S., read extracts from some of the numerous letters which had accompanied the subscriptions.

In presenting the testimonial, Mr. Baerman called attention to the large amount of work Prof. Ramsay had done, noting especially that it commenced in 1840 with the publication of the "Survey of Arran," which still remains the standard work on the geology of that island. His labours in South Wales afforded him the material for the memoirs on "Denudation," which were subsequently expanded into the general theory of the action in marine denudation aided by atmospheric influences, his views on this question having been widely adopted by English geologists of the new school. The important work of reducing to a system the relations of the red shale above the coal measures, which has been effected by Ramsay and his colleagues on the Geological Survey, was then noticed. The results, as published in the Report of the Royal Commission on Coal, are probably the most valuable contributions ever made to scientific geology and to practical mining. As a proof of the accuracy of this work, it is gratifying to find that the results obtained by new sinkings in these coal fields always confirm Ramsay's views. Mr. Baerman concluded by reminding the audience of the Survey of Gibraltar, which has just been completed, and by stating that it was a subject for congratulation that Prof. Ramsay had relinquished his chair of Geology only to undertake even more important duties.

Prof. Ramsay, in reply, stated that during his University career there were no lectures on natural history or geology, and on looking back he considered himself fortunate in having derived his knowledge from "Lyell's Principles" and actual work in the field. He concluded by saying that the testimonial would ever remain in his family as an heirloom, and would bear testimony to the mutual affection and respect existing between himself and his students.

Prof. Smyth, as representing the school, pointed to the fact that although it was only a quarter of a century old its students comprised some of the most distinguished men in general science, and men entrusted with important work in this country, and occupying high official posts. He considered the results achieved by the school to be specially satisfactory when compared with such foreign mining schools as that at Schemnitz, all of which had Government appointments in their gift, which was not the case in this country.

Prof. Frankland responded for the Royal College of Chemistry, Prof. Guthrie for the present Professors, and Profs. Stokes and Tyndall for the past Professors. The toasts of the Geological Survey and Museum were responded to by Prof. Ramsay and Mr. Trenham Reeks.

THE METHOD OF WORKING "REARING" MINES IN NORTH STAFFORDSHIRE.

At the Manchester Geological Society meeting, on Tuesday—Mr. J. Dickinson, Her Majesty's Inspector of Mines, in the chair—an interesting paper, "On the Method of Working 'Rearing' Mines at Leycester, North Staffordshire," was read by Mr. W. J. Grimshaw, of the Stand Lane and Whitfield Collieries, Ratcliffe. In the course of his paper the writer said it had occurred to him that some notes on the contorted strata at Leycester, in Staffordshire, and the modes of working the mines there found, would not be without interest to the members of that society. Every mining district had its custom of working, custom born of experience, which would in the main be found suited to the requirements of the case. Custom might be modified with advantage in some cases, but there would generally be found some ruling principle which influenced in great measure the amount of the modification and the mode in which it might be safely made. A "rearing" mine was one in which the dip was between 30° and 90°, but any large area of exclusively "rearing" mines was seldom met with, and the writer was inclined to say the less frequently the better. The alternations of dip generally produced tracts of mines, which were locally termed "flats," and where the dip was much more moderate. The Leycester Collieries, to which he should particularly refer in his paper, were situated about four miles to the west of Newcastle-under-Lyme, and two miles south of Audley. They were on the west side of the great North Staffordshire fault, known as the Apedale fault, which ran through Talk-of-the-Hill, by Bignall Hill, Apedale, and White Barn. Somewhat to the north of Bignall Hill a saddle commenced, which ran by Apedale Hall, Alsager's Bank, and Silt Hey, from thence inclining in a south-westerly direction towards Leycester. On the east side of this saddle the dip was generally comparatively slight, but on the west it was very variable, and in some places extremely steep. The workings at the Leycester Colliery were exclusively on the western side of this saddle, and the mines at present in working were the Single Four-feet, 5 ft. 6 in. thick; the Single Five-feet, 4 ft. 6 in. thick; the Rayman, 7 ft.; and Hains Mines, with a total thickness of 16 ft. 6 in. In working these mines simultaneously the levels were drawn in the Hains coal, the holing dirt and Yardley coal being taken down, leaving the bottom of the Seven-feet coal for a roof. In dipping back the Seven-feet was early gotten, but much of the Rayman coal was lost in the goaf. The Ten-feet Mine, 7 ft. 6 in. thick, was next found, and below that the Two-Row and Banbury Seven-feet coals. These mines had generally friable roofs, bass and metal alternating, the metal being mostly of a shelly nature. Where the dip of the mines was very deep the area of the coals which could be opened out at one operation was much curtailed, in comparison with that which might be opened out in a seam of ordinary inclination. It was impossible to cut any work to the dip of the shaft, or shaft tunnel levels, on account of the difficulty and expense of haulage and pumping operation. In opening out a "rearing" mine, a pair of levels, about 12 yards apart, were generally driven to within 100 yards of a fault or other boundary from which drifting back might be safely started. A brow was then driven to the rise of the mine, and levels were started out of the brow at distances of 10 or 12 yards, measuring on the dip of the mine. These levels were holed every 15 or 20 yards. The brow was driven up about 100 yards, and was fitted up as a balance brow, the tubs being conveyed on a specially constructed carriage to give the necessary level when standing. Sometimes slant brows were driven at an angle of 20° and 25° off the level course. These, however, were more difficult to keep in repair than the balance brows, but they were useful when fitted up as jig-brows for conveying the coal from several districts to the shaft level. In driving the necessary straight work for opening out a "rearing" mine it was necessary to guard against falls of roof in the roads, for practically no storage room could be found in the pit, so that all falls required to be sent to the bank.

Mr. GRIMSHAW, after describing the section of a level in which the dip was 40°, said it was found best to leave in the straight work at least 1 ft. of coal next the roof where practicable, as it kept the roof good and effected a considerable saving thereby, but the coal on the high side, where the floor of the mine was exposed, often required spragging at the foot. The mine was opened out in pillars of about 18 yards in length on the level course by about 12 yards measured on the inclination. When the boundary was reached drifting back was commenced in the highest levels, and the lower followed, the lowest being generally about 10 yards behind the one immediately above it. By that time the roof would probably have fallen in the top drift, then the fallen debris was supported by the pillar of coal which was being gotten in the lower drift. When the lower drift approached the top of the pillar, the weight above generally made itself evident by the cracking and gulching of the coal. The drift was then widened out at the top as much as possible, and the

small pillar of coal thinned as much as could be safely done. A shot was then planted in it, and the result was what was locally called the "shooting of the gob." Sometimes the shot did not produce the desired effect, and the place might be on the move for days, and in some cases weeks, before the gob shot. When the drifts followed too closely it sometimes happened that the shooting of one gob caused that of several more, which was very dangerous to those working in the lower drifts, and such an occurrence often occasioned considerable alarm in the pit by the air being reversed, and the doors blown open, and sometimes down. Timbering was not much needed in opening out the mine, nor was it practicable to set much in the drifts. In drifting back, however, a considerable quantity was sometimes required to keep the drawing roads good for about a chain in advance of the drifts. The "rearing" mines had generally been worked from the outcrop in successively deeper ranks. This caused a rapid drainage of the gas, and was also often the cause of a liberal supply of water, which was certainly the lesser evil of the two in such mines. In opening out, if the coal was dry the gas was very strong, that showed little sign of abatement until some communication was made with the old works of the rank above. When such communication was effected water will slowly make its appearance, and where the water found a way in the gas found a way out, as would be evident by the lessened quantities of gas as further communications were made with the old works. He was not acquainted with any instance in which a considerable body of water had been suddenly tapped in a "rearing" mine, but he was inclined to think that the probability or otherwise of such an occurrence must greatly depend upon the nature of the mine, and the form of the old workings. As might be imagined, the gas was strongest in the cut-throughs or "jack" holes, which were driven just large enough for a man to work in, being enlarged as rapidly as possible, if needed, when a holing was made into the level above. Sheet-iron air pipes of about 10 in. diameter were chiefly used, as it would be difficult to ventilate the cut-throughs while driving by other means: 4-in. brattice boards might possibly be used, but the "jack" holes would require enlarging to admit of their being put in. The chief objection to the use of pipes was that they throttled the air, but he was not able to mention any other method which possessed the same advantages to meet the requirements of such cases as these. With regard to the ventilation of "rearing" mines, he might sum up his conclusions, as follows:—Use lamps while opening out, make a communication with the old works in the rise—if practicable to do so—as soon as possible, do not leave the level and cut through in driving at the same time, pay special attention to examining for gas from the face of the level to the next open cut-through, see that the cloths in which air-pipes are fixed are not too tight, and if there be gas in the goaf stop the drifts till the gob shoots. After explaining sections in which the curious contortions met with in the 10-ft. mine, which in some instances was almost perpendicular, and in one part was actually reversed, were shown. Mr. Grimshaw concluded his paper by stating that in bringing the subject forward he had done so thinking it might be of interest to the members, but hardly in the expectation that the paper would be of any very great value to the general mining public, as "rearing" mines fortunately were not frequently met with in this country, and where met with were doubtless dealt with in an efficient manner.

A vote of thanks having, on the motion of Mr. GEORGE WILD, seconded by Mr. W. EVANS, been passed to Mr. Grimshaw for his paper a general discussion was opened.

Mr. J. F. SEDDON said he had paid special attention to this subject for several years, but he had not had an opportunity of visiting the collieries which had been described by Mr. Grimshaw. Steep mining was very difficult in most cases, but in this case it must be exceptionally difficult. With regard to these mines he should like to know whether in the balance brows 3 yards wide the roof was of such a nature that it would hold up without support, because if it had to be timbered it would be a very expensive process, and he should also like to know whether 100 yards was the limit to which the balance brows could be driven.

Mr. GRIMSHAW said the balance brows were driven up to 8 and 9 feet wide. There was much less stress on the roof generally speaking than was the case in the level. They would stand in the case of some mines, but in others they would not. In one mine very strong cross-pieces were put across the brow, and let into the coal. In the case of a mine that would not stand they had to curtail the width of the balance brow. One hundred yards was the limit to which a balance brow could be driven. A balance brow of 100 yards in good working order would deliver about 300 tons in 10 hours from a district. In getting back a man would on the average get quite as much coal, if not more, than a man working on the flat.

Mr. MARTIN (hon. sec.) observed that in the case of some mines he had been connected with in driving a slant brow he had found, in consequence of the manner in which the face of the coal ran, the slant brow did not stand so well as the ordinary brow. He had known in a mine with a dip of from 50° to 65° timber to be set 5 to 6 feet apart all along the levels, and instead of brattice 3-in. deals were used when it was necessary. Pipes seemed to prevent the air from circulating.

Mr. GRIMSHAW said he had alluded to this defect connected with pipes. In some cases as many as three sets of pipes had been put into a place. In the cut-throughs, which were just wide enough for a man to work in, it would be difficult to put brattice.

Mr. GRIMSHAW, in answer to a question, said that in driving there was a very strong objection on the part of the men to lamps.

Mr. MARTIN observed that by the introduction of Clanny lamps they had overcome the objections of the men.

Mr. DE RANCE asked whether in the vertical mines which had been referred to the coal had been worked or proved.

Mr. GRIMSHAW said it had been proved, and a very considerable district of vertical coal in the neighbourhood of these pits had been worked.

The CHAIRMAN: What is the method of working the vertical coal? Mr. GRIMSHAW said that he had not himself had very much experience in the vertical coal, but where it had been worked they made use of platforms and ladders.

The CHAIRMAN said the paper was one which would be of considerable value to many members of the Society, the greater proportion of whom were connected with mines dipping to a moderate angle. In the Manchester district the average dip was not more than 1½, but going to the eastern side of the coal basin, about Ashton-under-Lyne, there were some very steep mines, almost as steep as those in North Staffordshire, and in the northern part of the coal field the dip there was at an angle of from 45° to 60°, until the coal actually overlapped itself a little. Then, in the Wigan district and further west the angle was, perhaps, 1 in 6 in some cases. The details of the method of working "rearing" mines would be very useful to mining engineers who had not had the experience of these steep gradients. He had visited these mines some years ago, and as far as he could recollect they had been very accurately described by Mr. Grimshaw. He had also visited some of the Somersetshire mines, where some of the overlaps were very distinct, but in Belgium they were so distinct that had a shaft been sunk it would have passed through the same seam three times. In Belgium, where they had a large number of steep mines to work, the universal system was long wall. There was, indeed, scarcely any such thing as pillar and stall there, such as was carried out at the North Staffordshire pits. There were advantages and disadvantages in both systems; in the long wall system they had the roof to support, and in the pillar and stall system they had the shooting of the gob to contend with.—The discussion then closed.

NEW BLOWPIPE.—A novel blowpipe, consisting of a fire chamber connected with an air forcing apparatus, and provided with nozzles of various forms for directing one or more jets of heat and flame, has been designed by Messrs. DODGE and GUSHURST, Omaha, Nebraska. The object is to provide a portable blowpipe, the flame of which will have sufficient power to heat objects of considerable size. The fire chamber consists of a cylinder of iron having conical ends. To one of the ends the blast pipe is attached, and to the other a nozzle is attached by screws, so that it may be removed and

replaced by nozzles of different forms. There is an aperture in the top of the fire chamber, for the introduction of coal, &c. The chamber is lined with a coating of fire-clay. Flat, elliptical, or double nozzles capable of directing the flame on both sides of an object are used according to circumstances. In use the chamber is filled with burning charcoal, coke, or other suitable combustible substance, and the blast pipe is connected by a flexible pipe with a blower or bellows. A blast being created, a jet of flame and heated gases issues from the nozzle, which is directed against the object to be operated on. The heat generated in this manner is said to be so intense that heavy irons, like the frame or braces of locomotive or other large objects, may be heated in their places and bent. With a nozzle having several jets arranged in an arc, the tire of a locomotive wheel may be heated and expanded, so that it may be easily removed.

THE GUARANTEED INDIAN RAILWAYS.

Three of the principal guaranteed Anglo-Indian railway companies are enabled to give their stockholders supplementary dividends for the first half of 1876, in addition to the 5 per cent. per annum guaranteed by the Anglo-Indian treasury. The companies which find themselves in this satisfactory position are the East Indian, the Great Indian Peninsula, and the Bombay, Baroda, and Central India; and the supplementary dividends range from 13s. to 2s. 6d. per cent. These results are encouraging, and they are calculated to induce the Anglo-Indian Government to proceed with energy in the development of extensions and new State lines. The Madras, the Great Southern of India, and several other networks of more or less importance are unable at present to swing clear of the guaranteed 5 per cent. per annum, and these less fortunate undertakings are yet some burthen to the Anglo-Indian exchequer; but still the general state of affairs would appear to have been improving this year, for not only have the guaranteed railways of British India been conferring, as hitherto, important material advantages upon the commerce and population of India, but they have also done so with a diminished strain upon the Indian treasury.

Some economies would appear to have been realised this year in the locomotive department of the Anglo-Indian railways. Thus, in the case of the Bombay, Baroda, and Central India Railway the locomotive expenditure amounted in the six months ending June 30, 1876, to 17½d. per train mile as compared with 22d. per train mile in the corresponding period of 1875, the reduction observable being attributable to some extent to the lower price which has prevailed for coal. The difficulty of dealing with the overflow of the great rivers of India by reason of heavy floods still remains, however, almost if not quite as serious as ever it has been. Thus in the first half of this year the Bombay, Baroda, and Central India Railway Company had to expend upwards of a lac of rupees in making good flood damages. Another sum of 58,000, had to be spent on the improvement of over-bridges in Bombay, and in raising the Nerbudda Valley embankment. Early in September, 1876, 25 of the southern spans—equal to about 1500 ft.—of a great bridge over the Nerbudda river were also carried away by heavy floods. The settlement of the design to be adopted in the permanent re-construction of this important bridge, together with the question of the best course to be followed for strengthening other large bridges of similar design on the railway, has, with the concurrence of the Secretary of State for India, been referred to Sir J. HAWKSHAW, C.E. The engineer who can devise means of bridging the great Indian rivers with permanence, stability, and security will most certainly deserve well of his country, and will earn for himself a lasting reputation.

The problem may yet be solved, as the resources at the command of the Anglo-Indian Treasury and the guaranteed Anglo-Indian railway companies are practically illimitable. The difficulty can, probably, only be overcome by the establishment of works of a larger and more solid character. Larger spans, deeper and stronger foundations, and more massive construction generally may yet cope even with monsoon difficulties, but we must not be too sanguine that this will be the case. Meanwhile, monsoon or no monsoon, it is satisfactory to find that the position of the leading Anglo-Indian railways is improving; that they are being worked with care and intelligence; that they are conferring solid benefits upon the Government and people of India; and that while they are doing this they are relieving the Indian exchequer to some extent of the strain it has had to endure in respect of them.

EXTRACTING GOLD AND SILVER FROM THEIR ORES.

THE SECOR EXTRACTION PROCESS.

The ordinary method used to extract gold and silver from their ores is by crushing in a mill and then amalgamating. But, as in the placer mines, where what is called float gold generally escapes the rifles, so in quartz mining, should the ore contain free gold at all, there must be more or less float in the pulp as it comes from the stamp, and this is lost in the amalgamating pans. This float gold is so exceedingly light and thin, being more like gold-leaf than anything else, that it has practically no weight, and will not sink to where the mercury has been put. As all gold ores carry more or less free gold, even though they are composed of sulphurets, chlorides, and the like, there ensues a loss in milling which amounts to no small sum in the course of a year. It has been estimated that the loss of the Comstock Mines from this cause alone was between two and three millions per year. As might be supposed, efforts have been made to counteract this and to save the metal. The idea of introducing superheated steam into the pans, vaporising the mercury, and sending that vapour through the mass was tried, and found to answer well as far as the float gold was concerned, for the mercurial vapour would come in contact with the metal and form an amalgam at once. But with such treatment the great mass of the gold would not be caught, and it was, therefore, necessary to treat the pulp a second time in the open pans with the mercury in a metallic state in order to save this. This double process was too expensive to be profitable, and so the use of superheated steam was discontinued.

According to the process invented by Mr. Chas. Secor, the crushed ore is put in a machine resembling a covered pan. The first introduction of steam is at about 80 lbs. or 90 lbs. pressure, which heats the mercury, and sends it through the entire mass, and takes up all float gold; the steam is then turned off for awhile, and re-introduced at a lower temperature, just sufficient to warm the mercury and cause it to combine with the metals. From 90 to 95 per cent. of the assay value is saved by this process. The machine itself is a strong iron closed cylinder containing a series of mullers, which keep the ore constantly agitated. The object of disintegrating the ore by the steam is to thoroughly prepare the charge for amalgamation, and the pressure and the degree of heat that accompany it are put on according to the general character of the ores to be treated. After being worked for one or two hours at the high pressure required the steam is shut off, and the pressure reduced through a pipe for that purpose. Quicksilver is put in the charge, everything made tight, and amalgamation commences and ends in one or two hours. When finished all is discharged into settlers, and a new charge put immediately into the machine. Work is going on all the time, for while cleaning up the settler more ore is being treated. The treatment of ores does not necessarily take the length of time mentioned, but varies according to the class. Some ore can be charged in the machine and thoroughly treated as above in one hour and a-half. For saving very fine gold in ores, gold that floats and cannot be precipitated, it can be easily understood that in amalgamation the heat of the steam agitates the quicksilver, the mullers carry it up in the charge, bringing it in perfect contact with the metal it is searching for. In treating a sulphuret a pressure of 60 lbs. is put on to thoroughly disintegrate, decompose, desulphurise, or drive off the sulphate that holds the gold a prisoner. That effected, amalgamation is easy. A very heavy sulphuret will have to be roasted prior to amalgamation by this method, but it will not be necessary to crush the ore fine before roasting. Desulphurising in a common limekiln furnace, the ore, broken to the size of an egg, is all that will be required, and ore in this way can be roasted in large quantities.

It is stated that very base ores can be treated by the Secor process

raw, and made to yield about 70 per cent. of fire assay, but with the assistance of a plain fire treatment in addition the yield will be sufficient to satisfy all reasonable men. With silver ores this treatment is the same, except the very moderate use of chemicals, the cost of which is very much less than in the ordinary open pan process. The supposition is that gold is mechanically combined in the ore; silver, with exceptions, chemically combined with other metals or minerals in the ore; hence the use at times of the addition of fire treatment and chemicals for the successful working and yield of silver ores by an amalgamating process. The quantity of steam used in this machine is merely nominal, the steam once through the pulp with the first pressure on is the largest supply wanted. The continuation of the pressure through the pipe is to supply the trifling amount of steam that condenses. Mr. Secor does not claim to treat all kinds of ore by his method, but tells us that the class of ores he can and has worked successfully with good yield is sufficient to handsomely remunerate him. He says that the process will enable parties to work low-grade ores at a cost that will yield a profit, and that mine owners can have the ores from their mines worked in quantities of from 5 to 10 tons before purchasing the machines.

SAND IN IRON.

LORD PALMERSTON'S definition of dirt as "matter in the wrong place" is of very wide metaphorical application. It is applicable to the presence of silica in iron, which, speaking generally, is sand in the wrong place. In one form or another sand is found in most of our minerals; it is certainly dispersed throughout our coal and limestone seams, and it is combined with our iron ores. It is so refractory that it is not to be got rid of by the process of calcining either in the open or closed hearth, and it passes as a constituent of the coke, the lime, and the iron ore into the blast-furnace, where it is impossible to wholly expel it, for it holds possession as silicon. The puddler and the other operators in the forge and the mill have to do battle with it, when it is desired from the pig to produce wrought-iron of first quality as a malleable product. True its presence will contribute to the making of a quality of sheets suitable, for example, to the making of cut nails, or strips for making gas tubes; indeed, will help to make puddled steel, for it has a tendency to deposit carbon, but when we have said this we have pretty much exhausted the category of good service, which in iron making silicon is capable of rendering. The benefit of its services it will be seen is hardly more than negative in the best of cases, since the value of nail-sheets and tube strip is only trifling.

It should not, therefore, be surprising that ironmakers should generally desire to rid themselves of the ingredient. Blast-furnace proprietors would gladly rid themselves of it in other than exceptional instances, but how to succeed is not clear so far as the ingredient is part and parcel of the pig. Less difficult, however, would be the attempt to cleanse the surface of the pig from the presence of sand. In truth, in this there is no practical difficulty. For silica as an incrustation upon pig-iron the sand bed into which the contents of the blast-furnace is tapped is responsible. Running the molten iron of the blast-furnace into sand, thereby to shape the pig, is a practice which, though of very extensive application, would be more honoured in the breach than the observance. It is impossible but that the iron must pick up considerable quantities of sand, and thereby become seriously polluted. It is within the experience of men who use such iron in the forge and mill that the pollution may occasionally be calculated at 1 lb. of sand to 1 cwt. of raw iron. Silicon is a hungry ingredient in the furnace, and when it exists to the extent inseparable from such proportions as are here indicated, it satisfies its hunger at a great price to the proprietor of the iron. Good metal escapes in gas up the stack, whilst more is otherwise destroyed, to the increasing of the bulk of the refuse cinder. Nor must it be supposed that, because the output of the furnace is sometimes greater in the stage in which it is placed upon the puddled bar back, that, therefore, silicon has not exerted its wonted influence. The greater weight not unfrequently obtained from a charge of iron notoriously impregnated with silicon, as compared with the weight obtained from clean and pure iron like the high-class products smelted from the best claystone of South Staffordshire has resulted from the impoverishment of the fettling of the furnace, and oftentimes from the devouring of a scrap bottom in one heat, whilst at every subsequent stage of manipulation the iron made from the poorer puddled bar loses a much greater proportion than that made from the pig-iron which yielded less in the puddled bar, but did not rob the fettling nor destroy the furnace bottom.

The theme was some time ago ably discussed by foremost ironmasters in the Cleveland district, and it is now being taken up by the practical ironmakers of South Staffordshire, where the Forge Managers' Association have this week had one discussion upon it, raised by one of their number, and they are stated to have had so much to say upon it that it was found expedient to adjourn the debate. The remedy of the evil consists in that which the leading ironmasters pointed out—the tapping of the blast furnace into chills of iron, and not into beds of sand. Doubtless, the first cost of chills would be much greater than of sand, but it is not clear that in the long run the employment of chills would not prove economical as the use of sand beds; for, when the chills had become worn out they would be capable of being used up, either in the blast-furnace itself or in the refinery, whilst the improvement in the purity of the pig would increase the market value of the iron. Mr. L. LOWTHIAN BELL has spoken upon the great economy which would follow upon the elimination of phosphorus from Cleveland iron and the transmuting of it into phosphoric acid. The day is not very remote when it will be resolved to further economise the refining of iron in the forge and the mill by the shaping of raw iron in chills and not in sand beds; and when that has come about puddlers will be deprived of sources of complaint pregnant of much dissatisfaction and ill-feeling, and many thousands a-year will be saved in the British iron trade.

THE NILES ENGINE.—When it is considered that the majority of steam users employ the cheaper classes of steam engines, it is hardly necessary to seek for further reasons why the engine with the single slide valve still finds abundant usage, despite the existence of the improved automatic cut-off machines, with all the advantages which they offer. To meet the demand for an efficient motor of the first-mentioned type at low cost, the Niles Tool Works, of Hamilton, Ohio, have introduced a machine, novel and simple in design, the working parts being neatly proportioned and adjusted to compensate for wear, whilst access to them is rendered easy. The bed casting is bored out, and the metal disposed as nearly as possible in the line of strain; when bolted down on the foundation the entire length is in contact with the masonry, thus insuring stability. The steam-chest is on the side of the cylinder, and low enough to drain it of condensation. The connecting rod is a solid forging, without straps or stubs. The mortises through each end are accurately broached for reception of the brasses, and a single cotter takes up the wear. The valve is driven directly by the eccentric rod. A diagram was taken with the machine (13 × 20) carrying its maximum load, at rated speed, with exhaust connected to a feed water heater. The average back pressure, independent of cushion, is less than ½ lb., the total counter pressure referred to the whole stroke being less than 5 per cent. of the average direct pressure. The design is also embodied in a complete stationary engine with vertical tubular boiler conveniently arranged on a substantial cast-iron base. This engine is also modeled after the Tangye, but possesses some novel features of its own. The bed, cylinder, inboard pillow block, slides, and seat of steam-chest are all combined in a single casting. Around the cylinder is cast a thin shell forming an air space, into which the condensation from the cylinder is drawn. Ample provision is made to compensate for wear, and steel is freely used in the construction. The pump is driven by a small crank at the outboard end of the main shaft. The boiler is of the vertical tubular type. The smoke bonnet is made in two sections, the upper one of which is pivoted, allowing it to be swung entirely clear of the boiler, for cleaning the tubes. The boiler is provided with compression gauge cocks, spring pop safety-valve, with hand lever to blow-off steam-gauge, check-valve, blow-off, and drip tubes. The engine, boiler, governor, feed-pump, and appurtenances are furnished in sizes from 2 to 12-horse

power, complete, all ready for the boiler to be charged with water, fired up, and run. The engine is warranted by the builders to develop the rated power at 60 lbs. boiler pressure.

MINING AND STOCK EXCHANGE NEWS OF THE WEEK.

Messrs. F. W. MANSELL and Co. (Sworn Stock and Share Brokers) 43 and 43A, Palmerston Buildings, Old Broad-street, write to us as follows:—

SILVER MOUNTAIN MINES—EXCHEQUER, I.X.L., ISABELLE, &c. (No. IX.)—Passing up the Scandinavian canyon, we first reach the Pittsburg Mine, located south-east of, and about one-fourth of a mile from, the I.X.L., and consists of four locations upon as many parallel lodes. This was once a prominent company, with its offices located at Pittsburg, Pennsylvania. Nothing having been done upon the property for a number of years, it has been recently re-located, the locations thus made forming the four claims as mentioned. Under the old organisation a tunnel was started, the initial point being located at some distance above the canyon lode, and continued until it had reached a distance of 600 ft. About 100 ft. from the tunnel mouth the first lode was encountered 40 ft. from the surface. At this slight depth, the surroundings being taken into consideration, nothing more could reasonably be expected from what appeared in the croppings above the surface. It has a good location for permanent works, a large area of surface, and a fair supply of good timber. To the north and south of these lodes are situated others of a like nature, but inefficiently worked, having nothing that would tend to develop the lodes below the canyon level. An important claim, the Gould and Curry, consists of a southerly extension of 1000 ft. on the lode first encountered in the Pittsburg Tunnel, and is opened by a drift of probably 100 ft. in length, cutting the lode at the slight depth of 50 ft. Where penetrated, the lode shows a width of 10 ft., and a very good quality of ore. Specimens of a nature unique and valuable have been extracted the quartz appearing like ribbons of crystal, adhering in places to the porphyritic rock surrounding the lode, and showing throughout its crystal form the beautiful ruby ore. This location is admirably situated for deep working, and is held in high estimation by the owners.

To the north of the Pittsburg locations are other lodes more or less developed by surface tunnels. Preparations are being made to resume work upon some of them upon assurance of success attending the test of the O'Hara furnace. The general appearance and position of the veins, and their existence within this mineral belt, is regarded as favourable for permanent working, and undoubtedly a majority of them are worthy of more attention than they have heretofore received.

Many of these Silver Mountain locations, like those on the Comstock in early times, passed from hand to hand, and worked by those who played an important part in the former history of the Washoe Mines. How little appreciation Comstock himself had of the real value of what are now known as the Bonanza Mines is evinced by the fact that he parted with his interest in nearly the whole of it for \$6000, congratulating himself that he had been able to dispose of it for even that amount, and joining with his associates in making merry over the manner in which he had taken in what they facetiously termed the "California rock sharp," an enterprising and experienced quartz miner of Grass Valley, who having heard of this discovery, and seen some of the rich ore, hastened over the mountains for the purpose of examining the deposit, and making a purchase thereof.

In drawing out the deed whereby this was conveyed to Walsh—the California "rock sharp"—it was, for the want of a better name, described as the "Comstock ground," a style of description which, having been adhered to in all subsequent sales of the property, or portions thereof, caused this term to be at length applied to the whole lode. Other than this, there was no especial fitness in thus designating the great ore channel, the man whose name it bears having nothing to do with its discovery, location, or subsequent development, and who acquired all the interest he ever had in it at a very cheap rate.

The accomplished author of the "Resources of California" says—"One cannot realise the magnitude of the mining operations now going on in California without visiting them. The next generation will witness far greater operations than ours, and the third generation will not exhaust our mines. Truly it is said by old mining experts that there is more gold and silver in the California mines than has been taken out."

ISABELLE (Gold and Silver).—From the numerous communications to hand, it would seem necessary we should state that it often happens the most important mineral discoveries are at first under-estimated, and their value overlooked. In the same way that nearly all great inventions are purely accidental, the appreciation of such strikes is frequently a matter of chance rather than judgment. People are almost as apt to undervalue "finds" as to exaggerate them—in the early history of the Comstock the rich grey and black silver ore was thrown aside as worthless by the miners, who looked only for gold. A strange case has just come to our knowledge—it is that of a prospector who did not recognise gold when he had it. According to the account given to us, in a certain district not a hundred miles from Silver Mountain, the largest nugget weighed 16 ozs. of pure solid gold, which, strange to say, was at first thrown out of the sluice-box by its finder as a worthless rock; its weight impressed the man, however, and on closer examination revealed its true value.

As to the origin of veins and formation of mineral lodes, it is not our purpose to advance any new theory, but rather to set forth the opinions we found entertained by the scientists as well as by the practical miners who accompanied us in our recent inspection of the several American mines. As elsewhere, upon this question scientists' views do not harmonise with those of "practicals." Your able correspondent (Mr. J. A. Morgan, F.G.S.) represents in the main what is known in America as the "scientific theory," propounded by some of the principal authorities upon the Pacific Coast. Even as to the copper mines of Lake Superior, there is great disparity of opinion. One contends the metal is so closely associated with dykes of undoubted igneous origin that injections of the metals and enclosing trap, at one operation, at once suggests itself. Another contends the facts do not point to the conclusion that the native copper was ejected with the trap-rock in a molten state, the facts showing the reverse to be the case. Most of the copper, especially that in the cavities of the amygdaloid trap, is beautifully crystallised and chemically pure, while in many instances crystals of native silver are formed in the same cavities, and sometimes interlaced with the copper crystals, and both pure. Besides these significant facts, crystals of calcite, agates, and other minerals are found so associated with the crystallised metals as to preclude the possibility of their purely igneous origin. If the copper and silver in the mines of Lake Superior had been run together in the form of an alloy, instead of each being pure, and in actual contact with each other. Besides this, it is well known that the crystals of agate, quartz, and calcite could not have been formed until the trap became sufficiently cooled to allow water—or, at least, hot steam—to penetrate the mass of porous trap-rock. The metals (copper and silver) must have penetrated the fissures and cavities of the igneous rocks in a state of solution with the steam and hot water, the chemical reagents being such that they were deposited in the metallic state instead of sulphides, or other forms of the ores of those metals. Copper is much more easily soluble than gold, yet we find gold deposited in the metallic state in such positions and associations as to preclude the possibility of its igneous origin. There can be but one true theory of the formation of ore deposits. Local conditions control the operation of the law in so far as results may be considered, but as no two localities have ever presented precisely the same conditions we cannot expect to find the same results wrought out in any two places alike. Nature has produced just what the materials and the conditions under which they have been brought together would warrant—she never comes short of or oversteps the limits of law.

It may have occurred to some of our friends who take an interest

in the series of papers we are now engaged in writing to regard the facts stated very much in the same way as the philosopher looked at the flies in amber—

"It was not that the things were either rich or rare, He only wondered how the D— they got there."

Our endeavour has been studiously to keep within the limits of our actual observation and experience of many years in mines and mining.

We need now only add that the Isabelle lodes are in a formation scientifically known as of plutonic origin—true fissure veins—and in virgin ground; therefore, geologically considered, inexhaustible deposits of gold and silver ores.

EXCHEQUER (Gold and Silver).—The hereditary fortunes of the Old World, and even the computed wealth of some of the great banking-houses of Europe, are insignificant compared with the estimated wealth of some of the citizens of San Francisco, and of those to whom we refer all have acquired their possessions within ten years. The vast amount of wealth taken from the silver mines of Mexico and South America in past times is an assurance of the possible existence of other mines of equal or even greater value. Remembering the vast superiority of the present machinery and modes of working over those of the olden times, it is certainly within the range of possibility that the Nevada and California mines will give much greater returns than has ever occurred before in the history of mining. It is hardly presumable that the Comstock lode is the only true fissure vein that will be found to yield such enormous stores of the precious metals. All lead to the conviction that we are only just entering upon the discovery and production of gold and silver in the Sierra Nevada range of mountains; \$200,000,000 per annum as the product of the mines on the Pacific Coast is by no means so improbable a thing as it might at first appear. Mining is, and in the future will necessarily be, confined to a comparatively limited number of people, so that the prospective individual wealth is destined to exceed that of any other class in the world.

The United States Government Commissioner of Mines—the celebrated Professor Raymond—in his official report to Congress just issued, has prepared a tabulated statement showing the geological and mineralogical comparison to be made between the Exchequer and Virginia Consolidated Mines, assimilating these two mines. As evidences in the Comstock indicate the richer deposits to trend south, we would observe that Exchequer is south from the Virginia Consolidated. The average of the ore, it is true, in the Virginia Consolidated is estimated at \$150, that in the Exchequer at \$100, but now "magnificent ruby" has been cut in the 300 and 400 feet levels. But the Virginia take their ore from a depth of 1700 feet, and the Exchequer at 200, 300, and 400 ft. But then the Exchequer has not paid aught in dividends, nor did the Virginia for double the time which has elapsed since the commencement of the former enterprise. Then as to the present selling price of the mine, assuming the quotation to be 2½ 5s. per share, the aggregate market value is only \$250,000, and there is not a miner or a mining man who has seen it who does not compute its value at less than 1,000,000, or (say) 10% per share. We were shown, says the Reno Journal, a piece of ore just brought in from Pyramid, which was the exact counterpart of the bonanza rock. None but an expert could detect the difference between it and Consolidated Virginia ore.

I.X.L. (Gold and Silver).—Nothing of importance has occurred since last advices. The drift continues to progress towards the perpendicular of the bonanza, and the indications remain of a favourable character. The mill is expected to be completed early in the ensuing year.

BLUE TENT HYDRAULIC (Gold).—Since our visit to this property washing has been successfully continued, and the results much more favourable than we had anticipated. This description of mining is rapidly growing in favour with the Californians, and the extent and value of the Blue Tent property can only be determined by the quantity of water that shall be brought to bear upon its banks. For facility and economy of working, no less than the average gold contents of its gravel, Blue Tent stands unsurpassed by any consolidation of hydraulic claims in the Golden State. Water now being abundant large and continuous returns may be looked for. We purpose to write a paper or two upon Blue Tent and other hydraulic mines to appear in the Journal in the early part of the year.

GENERAL MARKETS.—Firmness has been apparent on the announcement that Russia had given up the proposal to occupy any portion of Turkish territory with her own troops. It is useless to speculate as to whether this fit of confidence will continue, as hitherto hope and despondency have alternated with singular regularity, ever since the Conference was fixed upon, and it must always be borne in mind that really nothing can be said to be settled as long as the last word is with Turkey. But it seems to be the general feeling that the sanguine anticipations now rest upon a firmer basis than usual, and we can only record the fact with the expression of hope that nobody will be disappointed.

FOREIGN BONDS.—Egyptian stocks have been in demand; the notification of one dividend payment after another, added to the assurances now obtained that the chances of any further interruption or difficulty are reduced to a minimum, have completely reversed the opinion which speculators have taken since the Egyptian securities. As to Turkish, it seems possible that the elevation of Midhat Pasha to the Ottoman Grand Vizierate may have important consequences to the bondholders of the Turkish Tribute Loans (1854 and 1871), as it has been generally understood that he favours the plan drawn out by the Bondholders' League. The leading feature of the plan is a temporary sacrifice of sinking fund and part interest by the 1871 bondholders for the 1855, or Guaranteed Four per Cent., and the temptation to the Porte is that it is saved the necessity of an annual provision for the latter loan. On the adverse side we have few changes to record.

RAILWAYS.—The boards of the South-Eastern and Chatham companies have approved the terms of fusion agreed upon by the respective Chairmen, the effect of which was a demand for South-Eastern deferred and Chatham preference. This department generally has shown much activity, owing mainly to the more pacific aspect of political matters. Speculators are disinclined to operate largely on the eve of the holidays, and the settlement which commences on Wednesday must of necessity be small. Towards the close the market became inactive, but the variations on the whole were exceedingly moderate. The weekly traffic receipts compared with a very fair week last year, yet presented no very unfavourable features generally, although in two or three individual instances the returns were not what they should be.

ST. JOHN DEL RRY MINING COMPANY.—The produce for the past 12 months has shown some falling off, but this is attributable to the fact that Capt. Gordon, on his return to the mine from his 12 months' visit to this country, found that owing to the manner in which the mine had been worked in his absence there was a good deal of unprofitable work to do in order to put the mine again in a thoroughly good condition. No doubt this will soon be accomplished, and increased returns may then fairly be looked for. At the meeting on Wednesday a dividend of 20 per cent. for the half-year was declared.

RICHARDS AND COMPANY.—At the meeting of shareholders, on Wednesday, a dividend at the rate of 10 per cent. was declared for the 12 months ending Sept. 30 last. On account of the continued depression of trade the working of the coal remains suspended, but the general coal business has been extended, and the sales considerably and satisfactorily increased, which shows the desirability of this department of the company's operations being still further cultivated.

CHAPEL HOUSE COLLIERY.—A meeting was held at the colliery, on Wednesday, Mr. A. G. Brookes in the chair. Prior to the meeting the shareholders present were taken over the works, and inspected them thoroughly, many going below and through the workings. The admiration expressed for the new engines and for the way in which the new works are progressing was quite enthusiastic, and the general satisfaction was much increased by the manager's report that the new 16-ft. shaft had that morning unexpectedly cut

through a seam of excellent coal 7 ft. in thickness. The meeting, which passed off well, will be fully reported in our next issue.

THE WEEK.

SATURDAY, DEC. 16.—There was no further buying of Chatham and South-Eastern stocks, the feeling was rather the other way to-day. The ordinary shares of the first company were considerably higher 12 months ago than now. They gave way to 23, a fall of ¾; the preference relapsed to 75. Dover, A, fell ¾, to 117½, but the ordinary rose 10s., to 128½; a year ago Dover A's were over 130, Egyptians rose to 49½, on a rumour that Mr. Goschen's report would be out to-day, and that it would be favourable. San Pedro, after being down to ¾, were required for at 22s. 6d. Chicago were offered at 6s. Some enquiry existed for Bilson and Crump shares, and 8½ was offered; of late several shareholders, whose holdings were small, have been increasing their interest, so as to be entitled to a larger stake in the Foxes Bridge and Central Collieries, which are highly thought of. Pennant Lead; the prospects continue very good here, and the returns with the extension of the dressing floors will be increased; the shares are 5½ to 6. Gold Run, 10s. to 15s.; Cedar Creek, ¾ to ¾; Milner's Safe, 10½ to 11; Diamond Rock Boring rose 10s., to 4½. One of the best progressive lead mines is said to be Pandora, the shares of which are at 2½. The directors of the Canada Company announced a dividend of 11. per share, and 11. per share more in repayment of the paid-up capital. There are 8915 shares without any liability. At one time 320, 10s. was paid on them, but successive repayments have now reduced that sum to less than 5s. Just at the close there was some Scotch buying of Caledonian and British.

MONDAY.—The Scotch buying assumed greater dimensions to-day. North British advanced to 109½, being a rise of 2½. At present there is an increase in the traffic compared with last year of some 20,000, and although the dividend will not be known before March next speculators are already calculating that it will show an improvement. Chatham preference rose ½, to 15½, but the ordinary shares fell to 22½. A fortnight ago it was mentioned that the shares of the Newfoundland Land Company might be had for three half-crowns. They have since been gradually rising, and were dealt in to-day at 17s. 6d., being a rise of over 100 per cent. Richmond, 9 to 9½. Port Phillip, 10s. to 15s.; a good report was received to-day, mentioning that a profit of 123½ had been made. London Omnibus, 15s. to 16s.; General Credit, 8½ to 9½; Dublin Tramways, 17½ to 17½; London Assurance, 64 to 66; National Safe, ¾ to ¾. It was announced rather late that the coupons on the Egyptian Loan of 1864, due since October, would be paid by Messrs. Goschen on or after the 22nd inst. Before this the 1875 Loan had been down to 45½, but it closed 1 per cent. higher.

TUESDAY.—More purchases were made to-day than has been the case for a considerable time past. All the markets were buoyant, and closed at about the best. Egyptians recovered to 51½. There was also a rise of over 1½. In Russian, 1873, bringing the price up to 89½. The retirement of the Grand Vizier acted beneficially on Turks. The "Little Turks" advanced ½, to 11½, and the 1871 Loan 1½, to 33½. Argentine improved 1½, to 69 to 70. So strong was the feeling in railways that even Sheffield rose 1½, to 73½. Caledonian was a very firm market, closing at 122½, a rise of nearly 2½. British touched 110½, but finally closed at 109. Chatham (preference) moved up to 77½, but the ordinary gave way, closing rather flat, at 22½. Midland, 13½ to 13½; Dover A, 118½ to 118½; Great Eastern, 50½ to 51; Great Western, 105 to 105½. The Ceylon Company held a meeting to-day; the 10s. shares—on which there is a further liability of 10s.—may be had for a few shillings. Don Pedros were dealt in at 10s., an encouraging report being to hand, New Queensland, 3½ to 4.

WEDNESDAY.—Hardly anything but selling was done to-day. Yesterday's important news was nearly all lost, prices settling down to Monday's rate. On that day Chatham (pref.) were 75½, and to that price they returned again to-day. The ordinary stock continued its downward course, and closed at 21½, the lowest price touched for some months, and nearly 3½ lower than what prevailed on Friday last, on the first flush of the fusion scheme. For the moment, therefore, the hon. proprietors seem to be losers by it. Dover A gave way 1½, to 117; Caledonian closed at 121½; and North British, 108½, both being 1½ lower. In the traffic published to-day Birmingham had an increase of 3585, North British one of 2737, and Great Eastern one of 1167. There was a decrease in Berwick of 1735, in Midland of 2520, and in Great Northern of 4538. Hooper's Telegraph, 1½ to 1½; London Tramways, 7½ to 8. In mines Exchequer were dealt in at 2½, New Zealand Kapanga at 4½, and Port Phillip at 10s.

THURSDAY.—An encouraging report from Wheal Crehor led to a few transactions in the shares this morning at increased rates. West Tankerville were rather in demand at 1½, Rookhope Valley were quoted 17s. to 18s., and Pandora 2 to 2½. The mining market was fairly active, but the other departments opened with a dull appearance. The "bear" seized the opportunity to make further sales, but there is hardly any change. Chatham (ordinary), which had fallen to 21½, there is hardly any change. Caledonian are 12½ to 12½, and British 108½ to 109. National Safe shares, with 7½ paid, are now valued at 1½, and Newfoundland Land at 1½. Four O'clock: Dover A has been down to 116½, now 116½; and Chatham Preference to 74, now 74½ to 74½. Metropolitan are 105½ to 105½, and District 47½ to 47½. The markets have been very thinly attended, and since noon the transactions have been few and insignificant. Egyptian of 1873, 49½ to 50.

FRIDAY (opening).—The markets have a very dull appearance, and "bears" being busy at work there is a further important decline from yesterday's prices, especially in railways. Chatham Preference are ¾ down to 74½; Caledonian and British have given way ½, and Dover A at 117 shows a decline of ¾. Russian of 1873 are below 79, and Egyptians are but 49½ to 49½. Parys Mountain, 10s. to 12s. 6d. West Tankerville, 1½ to 2. Rookhope Valley, 18s. to 19s. Gold Run, 10s. to 15s. Cedar Creek, 10s. to 15s. Sweetland Creek, 4s. to 6s. Don Pedro, 7s. to 9s. Chicago, 8 to 8½. A disposition is shown to sell Chatham House since the meeting; the shares are nominally 2½ to 3. Thorpe's Gawber are quoted 2½ to 2½; Bilson and Crump, 8 to 8½; and Newport Abercrom, 4½ to 5. Two O'clock: With the exception of Chatham (ordinary), which had fallen to 21½, there is hardly any change. Caledonian are 12½ to 12½, and British 108½ to 109. National Safe shares, with 7½ paid, are now valued at 1½, and Newfoundland Land at 1½. Four O'clock: Dover A has been down to 116½, now 116½; and Chatham Preference to 74, now 74½ to 74½. Metropolitan are 105½ to 105½, and District 47½ to 47½. The markets have been very thinly attended, and since noon the transactions have been few and insignificant. Egyptian of 1873, 49½ to 50.

Burchin-lane, Dec. 22. FERDINAND R. KIRK.

THE SCOTCH MINING SHARE MARKET—WEEKLY REPORT AND LIST OF PRICES.

The past week opened with somewhat of an improvement in the amount of business transacted, but the market has latterly been very neglected. In shares of iron and coal concerns the principal movement is a reduction of 65s. on Shotts Iron stock, Monkland (preference) being also reduced 3s. 9d., and Omoa and Cleland 1s. 6d. Scottish Australian (new) quoted 2s. 6d. lower. On the other hand, Lochore and Caplehead have improved 7s. 6d., Marbella 5s., Benhar 2s. 5d., and Monkland (ordinary) 2s. Richards and Co. are wanted, at 50s., while Oakham Colliery and Thomson, Sterne, and Co. (Limited) are offered. The Nanty-Glo and Blaena meeting has been adjourned to Dec. 25; enquiries have been made for the ordinary shares. A special meeting of the Ebbw Vale Company is announced for Dec. 22. At the Calcutta meeting, to-morrow, proposals for more capital will be submitted. A dividend of 4s. per share was declared by the British India Co. on Jan. 2. The Original Hartlepool Collieries are raising 30,000, in addition to the 150,000, before announced. Andrew Knowles and Sons are at 7s. 6d. prem. Bolckow, Vaughan, B. 99; ditto, 5 per cent. preference, 2s. 6d. prem. sellers. Cardiff and Swansea, 3s. 6d., buyers. Chatterley Iron, 22½ to 21½. Consett Iron, 12½ prem., sellers. Crown Preserved, 50s. to 70s. Darlington Iron, 9 dis., buyers. Great Western, 9 to 10. Llynvi, Tondy, and Ogmore, 17; Pelsall, 7 to 8½ dis.; Rhondda-Merthyr, 15 to 20; Rhymney, 24 to 28; Sheepbridge, 55s. to 45s. dis.; Skerrie Iron, 6½ to 7; Staveley A, 33½ prem.; ditto, 9½; South Wales, 8 to 10; Tredegar A, 16 to 17; West Cumberland, 11 to 12. In shares of foreign copper concerns Tharsis have declined 5s., while Rio Tinto 7 per cent. bonds have advanced 7s. 6d., Panulillo and Russia each 5s., and Huntington 2s. It is notified that the Rio Tinto Company have at their bankers the funds to meet the interest on the 5 and 7 per cent. bonds. The 5 per cent. bonds changed hands at the same price as last week. The advices received during this week from Yorke Peninsula continue satisfactory, but there have been no dealing in the shares.

In shares of home mines still next to nothing doing. Glasgow Caradon remains about 27s. West Maria unaltered. Aberdunant, 11s. 3d., Bampfyle, 11s.; Caroli, 80s. to 85s.; Carn Brea, 39 to 41; Derwent, 80s. sellers; East Van, 9½ to 10; Dolcoath, 39 to 40; Glyn, 42s. 6d.; Great Lacey, 19½ to 20½; Gunislake (Clitters), 60s.; Killfrith, 19s. to 21s.; Leadhills, 6½ to 6½; Llanrwst, 45s. sellers; Medlyn Moor, 18s. 9d. to 21s. 3d.; Parys Mountain, 12s.; Penstruthal, 9s.; Prince of Wales, 3s. to 4s.; Roman Gravel, 13½ to 14½; Rookhope, 18s. sellers; South Carn Brea, 9s.; South Condurrow, 7½; Tankerville, 8½, sellers; Tincroft, 20½ to 20½; Van, 37½ to 38½; Van Consois, 35s. to 40s.; West Chiverton, 18 to 19; West Goldolphin, 52s. 6d.; West Tankerville, 52s. 6d. to 57s. 6d.; West Wy Valley, 70s.; Wylfa Jan, 45s.; West Unit Wood, 6s. to 7s. 6d. In shares of gold and silver mines Richmond are reduced 2s. 6d. on week's run being 345,000. Notice is given that the trial in connection with the Emma Company was begun in New York, but shares are unaltered. The advices received from the Don Pedro, London and California, Port Phillip, Santa Barbara and St. John del Rey Companies are much the same as usual. The net profit for Nov. for Chicago is \$7000. Cedar Creek are at 15s.; Chontales, 7s. 6d.; Exchequer, 40s. to 45s.; Frontino and Bolivia, 30s. to 35s.; Gold Run, 12s. 6d. to 15s.; I.X.L. 17s. 6d. to 20s.; New Rosario, 2s. 6d.; Pestana, 3s. 6d. to 4s. 6d.; ditto, 4s. to 4½; St. John del Rey, 32s. to 35s.; Sweetland Creek, 5s. 6d., sellers.

In shares of oil concerns at one time a well-defined tendency for a rise in prices was in progress; but latterly there has been a sharp drop, on a pressure of sales by weak holders, induced by a decline in the New York oil market. On the week, Uphall and Young's Paraffin have each fallen 17s. 6d. per share; Oakbank, 1s. 6d., and ditto (new) 6d.

In shares of miscellaneous companies there is no feature. Newcastle Chemical have been done at 70s. 6d., sellers over. Bede Metal and Chemical are at 5½ dis.; Hopkins, Gilkes, and Co., and ditto (new), each 7½ to 8½ dis.; Langlands Chemical, 95s.; Lawes, 6½; Palmer, A, 20; and Phospho-Guano, 9½ to 10. Details of the several day's business follow:—

ON THURSDAY LAST MARKET QUIET. Aberdunant, 11s. to 13s. Bampfyle, 11s. 3d., sellers. Benhar, 9½ to 9½. Bolckow, Vaughan, A, done at 54. Cardiff and Swansea, 3s. 6d., buyers. Cargoli, 80s., buyers. Dalmeny Oil, 9½ to 9½. Ellwale, 19½, sellers. Glasgow Caradon done at 27s., closing 28s. 6d. to 27s. Killwath, 20s., buyers. Llanrwst, 45s. to 50s. Lochore and Caplehead, 7½ to 8½. Medlyn Moor, 18s. to 20s. Monkland done at 75s., closing 75s. to 75s. 6d. Neweastle Chemical, 63s. 3d., 4s. sellers. Oakbank Oil done at 35s., closing 35s., done 36s. 6d.; new shares done at 16s. 3d. Omoa and Cleland done at 65s., closing 65s. to 65s. 6d.; Penstruthal, 9s. 9d., sellers. Port Phillip, 11s. to 13s. Rio Tinto 5 per cent. bonds done at 59; ditto 7 per cent., 13½, buyers. Rom in Gravel, 13½ to 14½. Shotts Iron done at 101. South Condurrow, 7½ to 7½. Uphall and Young's Paraffin done from 13½ to 12½ and 12½. 16s. 3d., closing 12½. Yorke Peninsula (ordinary), 8s., sellers. Young's Paraffin done from 15s. 9d. to 16s. 18s. 3d., closing 15s. 15s. to 15s. 16s. 3d.

ON FRIDAY a moderate amount of business transacted. Aberdunant, 11s. 3d., sellers. Benhar done at 9½. 11s. 3d. Bolckow, Vaughan Five per Cent. Preference 2s. 6d. prem., sellers. Consett Iron, 12½ prem., sellers. Dalmeny Oil done at 9½

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1990-1991

Mining Correspondence.

BRITISH MINES.

ABERDAUNT.—S. Tox, Dec. 20: Deep Adit Level: The ground is rising towards the new shaft, is harder and discharging more water than it was last week. In the east part of the set (Crown) there is nothing new to notice in the cross cut driving towards the south lode during the past week.

ASHETON.—J. C. Craze, J. Manley, Dec. 21: Not much has been done in the 80, east of boundary, since our last, owing to a fall in the shallow adit which threw the water into the mine. We are now engaged in securing the same, and hope to complete it in a few days. The lode in the 80, east of boundary shaft, is of an exceedingly promising character, and is yielding fine stones of lead and blende ore, and lets out more water than we have seen for some time past; we daily expect an improvement. No lode has been taken down in the 50, east of Mawr, since our last; the upper part of the lode is showing good patches of lead. No change in the various stipes and pitches since our last setting report. The highest bidders for the 35 tons parcel of lead ore Messrs. the Barry Port Smelting Company, at 14. 15s. per ton f.o.b. here. We are pushing on the dressing for another parcel.

BEDFORD UNITED.—R. Goldsworthy, W. Phillips, Dec. 21: There is no alteration in the appearance of the lode in the engine shaft since last report: still worth 40s. per fathom. In the 127 east driving is continued by the side of the lode. In this level west the lode is producing saving work. The lode in the 115 east is worth 25s. per fathom. In the same level west we are driving by the side of the lode. The winze sinking in the bottom of this level, on the course of the lode, is worth 7s. per fathom. The lode in the 103 east is poor. In this level west the lode is producing saving work. The stopes are producing their usual quantity of ore.

BODDERS.—Dec. 19: The 30 yard level driving east, upon the main lode, maintains its value as reported last week. The 45 east has since last report, still worth 40s. per fathom. The 127 east driving is continued by the side of the lode. In this level west the lode is producing saving work. The lode in the 115 east is worth 25s. per fathom. In the same level west we are driving by the side of the lode. The winze sinking in the bottom of this level, on the course of the lode, is worth 7s. per fathom. The lode in the 103 east is poor. In this level west the lode is producing saving work. The stopes are producing their usual quantity of ore.

CARROLL.—J. Jennings, Dec. 20: Since I last advised you we have communicated Bowyer's flat road shaft to the 24 cross-cut, and have also driven 3 fathoms south from the north lode towards the south lode, in which cross-cut we have passed through three branches, each producing good stones of lead, and on Monday last we cut in another shaft 15 in., which, probably, is the south lode; it is producing rich stones of lead and sandy blende, thickly mixed with fine lead, and as yet no south wall. I cannot give its value before we cut through it, but suffice it to say that, so far as seen, it is of a highly promising character, and I have no doubt of a good course of lead in this level. The 11, east of Bowyer's shaft, on the counter part, is not looking so well, now producing saving work. The stopes in the back of the 11 east is worth from 10s. to 15s. per fathom. The stopes in bottom of this level is suspended—quick water here—until the 24 is driven under to drain the winze, which is already sunk 5 fms. below the 11, when this winze will be sunk to the 24, and stopping will again be resumed. The adit end, west of new shaft, on main lode, is still a fine champion lode; it is composed of all the usual abundance of muddle, sandy blende, and quartz. In the other bargains there is no change of importance. On Saturday next we shall sample about 17 tons of silver-lead.

CATHEDRAL.—J. Mitchell, Dec. 18: There is no alteration in the lode in the shaft since last week. The lode in the 42 east is also just the same. The lode in the 42 west is getting larger and improving, yielding fully 1/2 ton of copper ore per fathom. The tribute pitches are also looking well.

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the pumping and drawing wheel, and that is a considerable distance uphill from the washing doors around the shaft: we have, therefore, had to lay down a tramway from the low floor to the crushing mill, being an incline rail worked by the water-wheel, then, in connection with the crushing mill, we required new trunks, flange tubes, and slime pipes to dress the stuff coming direct from the crushing mill; all these are now complete, and ready for work. I will send a further report on Tuesday from the mine.

R. Rowe, Dec. 19: I have again been underground to-day. In the 63 cross-cut east we have passed through a small lode of a promising nature, about 6 in. wide, composed of blende and quartz. The cross-cut is being pushed forward to the lode known to be ahead of us. In the 60 south, the lode in the side referred to in my last report of the 7th inst., is now fairly cut through, and in character is of a strong ore-bearing nature; it is standing all in whole behind the level and shaft northwards. The lode in the 60 driving south is 4 ft. wide, mixed with blende throughout. The lode in the 50 end driving north is much as last reported, producing good stones of blende; width of lode about 2 ft. The water coming from the 40 and above it proving to be so troublesome, and upon making a preliminary trial in the roof of the 50, on the hanging and soft part of the lode, where it is perfectly dry, we find we can rise upon it 2 fms. for 1 fm. in sinking at the 40; this soft lode contains saving stuff for lead and blende, and the harder part of the lode we can cut into and prove as we go up. After much consideration to drive we have decided that this is by far the wisest and cheapest course to adopt, and I have arranged accordingly. We will drive a level at 2 fms. from the 40, and I have arranged the money. I may observe that nearly all the water of the mine is coming out of the 25 and 40, and never yet tapped below. The stopes in the 40 are looking very well. The crusher is going through the stuff fast, and the dressing in a forward state.

R. Rowe (telegram): Expect to have 100 tons of blende and over 10 of lead for sale in three weeks. Stopes worth about 20s. per fathom; price of ground 4s. **GLYN.—J. Roach, Dec. 19:** The engine-shaft is nearly 7 fms. under the 23 fm. level; ground stiff, and traversed by numerous branches of quartz and lime spar, congenial to lead ore. But the hanging-wall of the lode is not yet fairly in the shaft; consequently the underlie is very much less than we anticipated, which I consider is in favour of profitable results when the next level shall be reached. The 28, driving south west in lode, is in harder ground than usual, but more favourable for lead than at any former period. I think we shall soon enter into valuable ground in this direction. Machinery and all other work going on well.

GREAT DYLLIFFE.—Edw. Rogers, Dec. 20: Dylliffe Lode: At the 132, driving west of the engine-shaft, we are dressing the lode; we intend to commence stripping the lode at the 132, driving west of the engine-shaft, and as far as possible, Esparalged Lode: The lode is nearly through the first choke; there is a large pool of water to be seen inside this; I think, therefore, we shall make greater progress after a few days.

GREAT LAXEY.—R. Reddiffe, Dec. 19: Since holding the level between the engine and Welsh shafts at the 235 the opening has been properly squared out; we shall now cut the necessary ground at Welsh shaft for turning, casing, &c., which will perhaps take about a fortnight, and then sink away the said shaft below the 235. No. 2 winze now in the 235 is now of ore, or 20s. per fathom, and the 235 end north is still without material improvement. All the width of the lode in the 210 is now fairly opened, and the average value is 8s. per fathom.—Dumbell's: The cross-cut in the 215 south is not yet through the lode, but probably very nearly so; so far as seen it is worth 20s. per fathom. The lode so far as seen in the cross cut north of shaft, at the same level, is poor. In the 200 north a small slide has come in and cut off the ore for the present. The lode in the 110 north is improved, is worth 40s. per fathom, and likely to further improve. There is nothing else underground requiring remark. At surface everything is going on well, except that the pump and wheel is idle to day and yesterday while a piece of rail is being changed in the shaft.

GREAT RETALLACK.—J. Harris, Dec. 19: The lode in the 20 west has taken a more south-westerly direction in its course, and I think whether we are getting within the influence of the elvan, as the lode in the end is disordered, being made up of kilaas, flookan, along with ledstuf, in which we met with stones of blende, but no defined footwall; the ground continues good for progress. There is no other change in the mine.

GREEN BURTH.—W. Vipond, Dec. 15: Monthly Report: The end on new east and west vein has been very poor this week, and is so still; the limestone near the vein is jointy and open. No. 1 branch, west of No. 1 cross vein, continues as usual. Branch No. 2 has improved a little, and is now worth 1 1/2 tons of ore per fathom; this is the best working we have just now. The end of No. 2 cross vein is very much confused since going through the east and west vein, large open joints in limestone, and the vein not well defined; it may gather up again as it gets away from the intersection. There is no ore in it to value. The stopes on No. 2 is rather poor just now; this is getting close back to hand-pump. We shall have to begin a deeper stop on the bottom of the limestone in another direction, and the stopes on the east branch is yielding very steadily about the same as has been done all along. We have finished the delivery of another wagon of ore to-day—7 tons 4 cwt.

GUNSLAKE (Clitters).—W. Skerries, J. C. S. Scombe, Dec. 21: We are making all possible progress in the various parts of the mine, also in dressing, for the next sampling. There is no change to notice since last report.

HARWOOD.—Wm. Tallentire, Dec. 15: Hardslip: Driven this month on No. 3 east 6 fms. 1 ft. 6 in.; set to four men, at 3s. 9d. per fathom. We have not yet cut into the vein, the strata still dip fast, and part water from the joints, and the strata is not yet cut something very shortly. Driven north on No. 2 2 fms. 5 ft. 6 in.; set to two men, at 3s. 9d. per fathom. Gone south 2 fms. 1 ft.; set to two men, at 3s. 9d. per fathom. Both ends are as last week reported.

KLINGSTON DOWN CONSOLS.—J. Richards, Dec. 21: Bailey's shaft is in regular course of sinking below the 150 by the side of the lode, and favourable progress is being made.—Bailey's Shaft: In the 161 west the lode is 4 ft. wide, yielding 5 tons of ore, worth 15s. per fathom. In the 160 west the lode is 4 ft. wide, level west, east of Nicholson's winze, is 4 ft. wide, composed of quartz, muddle, capel, and occasional stones of ore, and is promising. The lode in the 160 west in the back of the 150 west continues worth 5 tons of ore, or 15s. per fathom. In Chynoweth's rise, in the back of the 140 west, the lode is 3 ft. wide, and worth 4 tons of ore, or 15s. per fathom. The pitches continue to yield some good quantities of ore.

HOLMBUSH.—H. Bennet, Dec. 20: Engine Shaft: Satisfactory progress with the sinking continues to be made.—Bray's Shaft: The sides are now cut down, and we are ready to fix the skiproad to the 60.—Wall's Shaft: We are drawing large quantities of first-class ore, and the lode is still improving. The 40, east of Wall's shaft, is still further improving. In the 60 we have not much more to clear before reaching the lead lode. All the machinery and appliances are working splendidly, and the surface work continues thoroughly efficient. We have a good parcel of copper in to-morrow's tickling at Truro, and we are busy preparing a large pile for next week's sampling, in addition to the arsenical muddle for the January sale, which we estimate will reach 500 tons.

ISLAY.—P. Hawke: We are driving the 35 west to get under the shoot of ore lately discovered. The 45 west is also being driven. The lode in the 15 west is irregular, but will become more important. The back of the 35 north and south, gives 25 cwt. of ore per fathom. The tribute pitches yield 30 cwt. per fathom. Other parts of the mine are exceedingly promising.

LADYWELL.—A. Waters, Dec. 21: There is no change to notice in the 33 south or 16 north since my last report. In the adit end south we have got into hard, blue, slaty rock, and a good looking lode, composed of very white carbonate of lime and bright soft lead ore, worth 2 tons per fm.; this looks like an important discovery.

MARKE VALLEY.—W. George, J. Stenlake, Dec. 15: Settling Report: To drive the 145, south of Salisbury shaft, by four men, at 28s. per fathom. To stop the back of the 124, on Mark's lode, by four men, at 3s. per fathom. To stop the back of the 124, on Mark's lode, by four men, at 3s. per fathom. To stop the back of the 112, by four men, at 4s. 10s. per fathom; yielding 5 tons per fathom. The four men in the stopes below the 80, on Rosedown lode, are now employed in stripping down the side; this stopes will yield fully 5 tons of ore per fathom. To stop the back of the 70 by four men, at 2s. 10s. per fathom; worth 3 tons per fathom. The winze sinking below the 60 has been holed to the 70, but not yet squared, consequently the ore was not set to-day; the lode is yielding 2 1/2 tons per fathom. To stop the bottom of the 60, by four men, at 7s. per fathom; yielding 4 tons per fathom. To stop the back of the 60, by four men, at 7s. per fathom; yielding 4 tons per fathom. To stop the back of the 50, by four men, at 4s. 10s.; here it will be observed we have had an improvement during the past month in the character and product of the lode, which is now yielding 3 tons per fathom. Nos. 1 and 2 stopes, in the back of this level, by two and four men, at 4s. 5s. and 5s. 5s. per fathom, each yielding 4 tons of ore per fathom. The part of the lode on which we have been driving the 30 west being still unproductive, we deem it advisable to ascertain if a more productive part is standing to the south. To prove this we have set to four men to cross-cut from the present end at 10s. 10s. per fathom. To stop the bottom of the 30, by four men, at 2s. per fathom; yielding 5 tons per fathom. No. 2 stopes, in the back of the 30, by six men, at 7s. 10s. per fathom. To drive the west, by four men, at 7s. 10s. per fathom, where the lode is 2 1/2 ft. wide, yielding from 1 1/2 to 2 tons per fathom. To stop the bottom of the 20, by six men, at 4s. 10s.; lode yielding 5 tons per fathom. To stop the back of the 20, by four men, at 4s. 6s. per fathom; worth 3 tons per fathom. To drive the 10 west, by four men, at 6s. per fathom, where the lode is at present small and unproductive. The stopes in the back of this level has not been measured to-day in consequence of the men not having taken down the lode in accordance with their contract. When this is done we shall set the stopes to four men, and the lode will yield from 2 to 3 tons of ore per fathom. To drive Salisbury adit west, by four men, at 5s. per fathom; lode yielding 5 tons per fathom. Salisbury's shaftmen are engaged driving and casing the shaft, and the new shaftmen in taking down some ground towards the bottom of rise preparatory to fixing skiproad. We have set seven pitches in various parts of the mine, varying from 9s. to 34s. 4d. in 1 ft. Fair progress is being made with the erection of the engine, considering the very hindering weather we have had.

MEDLYN MOOR.—J. Prisk, Dec. 18: We have intersected the lode in the 27 west of cross-course, and so far as seen, is looking very well. In the 27 north cross-cut we are near the lode, and by Saturday I hope to be in a position to report what I have every reason to think it will greatly assist us in our returns. I shall sell 5 or 6 tons of tin this week.

Dec. 21: The tin sold this day realised 252s. 9s. The mine is looking much better than when we were down here.

MELLENAR.—J. Gilbert, Dec. 20: The lode in the 30, west of the skip-shaft, 1 1/2 ft. wide, with occasional stones of copper ore, but nothing to value. We have about 16 fathoms further to drive to reach the cross-course, at which point we expect an improvement. We are still driving north on the flookan at the 50, but our progress this week has been rather slow, owing to the very dull and wet weather that we have had. The lode in the 67, west of shaft, is quite as good as last reported, worth fully 6 tons of ore per fathom. The 75, west of shaft, is worth 3 1/2 tons per fathom. There is no change to notice in any of the other bargains since last reported. The water has increased by the late frosts of rain about a stroke per minute at the old engine, but our machinery and pitwork are in good order, and working very well. We sampled yesterday (compiled) 275 tons of copper ore.

MOXDD GORDDU.—Richard Rowe, Dec. 20: We have got into the lode at

the 24 cross-cut about 4 ft. of the 26 ft. to get through it; this portion is composed of quartz, clay-slate, lime, spar, copper, lead, and blende, but not in sufficient quantities to value. The water is increasing as we advance, and I expect something better ahead. I will advise you as to the character and composition of the portion yet to be processed. The stopes have improved since my last report, consequently I expect to get lead faster than of late. The weather continues most favourable for this time of the year, and our drawing, pumping, and dressing going on regularly, with fair progress towards our next sampling.

NEW CHIVERTON.—J. Trewarth, Dec. 21: In the 60 north we are driving by the side of the lode. In the 60 south the lode is worth 5s. per fathom. In the 50 south the lode is worth 7s. per fathom. In the 35 north the men are driving by the side of the lode. In the 35 south the lode is yielding good lead work. The tribute pitches are looking well, and yielding their usual quantity of lead.

NEW CONSOLS.—R. Pryor and Son, T. Jenkin, H. V. M. Dec. 20: There is no change worth notice in our underground operations since our setting report of last week. Satterthwaite's pumping-engine was set to work yesterday, and has since forked the water 8 fms. below the 20. The engine is working splendidly, and we hope to be able to drain this part of the mine about 7 fms. below the 30 against Saturday next. The three Oxland's calciners are working well. This remark is also applicable to the whole of the chloridisers. The arsenic refinery is also doing well, and we are busily engaged in preparing a parcel of precipitate for sale. On the whole, we are pleased to say everything throughout is progressing in the most satisfactory manner.

NEW HENDRA.—R. Rowe, Dec. 19: The deep adit end set to drive by six men for the month at 8s. per fathom. The ground in the end is very much disordered, and the lode in the end heaved to the north of the end. We shall continue to drive the end in the usual direction in the hope that the lode will again be met with as soon as the present bar of disordered ground is driven through.

NEW NORTH POOL.—W. C. Vivian, Dec. 21: I find from the underground man, who is now up from the mine, that we continue to cut into fine branches of the lode, that the appearances are improving, and there is a gradual increase of yellow copper ore throughout all the stuff we are breaking from the end as we advance. The specimens which he has brought up confirm the reports. I intended to have inspected myself to-day, but am too late to do so and save stop, so shall inspect to-morrow, when I will again write to you.

NORTH LAXEY.—J. Sowden, Dec. 19: In the shaft sinking below the 136 the lode is from 3 to 4 ft. wide, and is now yielding good stones of lead, with every appearance of further improvement. The stopes from the 136 to the 114 winze is worth 30s. per fathom. The 60 stopes is worth 1 ton of lead per fathom. The stopes worth 1 ton of lead per fathom. The 50 rise is worth 1 ton of lead per fathom.

OLD TREBURGETT.—W. Hancock, W. T. Bryant, Dec. 21: In the 102 south the lode is 3 ft. wide, producing occasional stones of silver-lead; ground improved for driving. In the 90 south the lode is 4 ft. wide, worth about 7s. 10s. per fathom, ground also improved for driving. In the 80 south the lode is disordered. Nos. 2 and 4 stopes, in the back of the level, have improved; the 2 stopes is worth about 15s. per fathom, and the 4 stopes, at 26s. 7s. 6d. per ton; No. 2, 5 tons, at 24s. 2s. 6d. per ton.

PENNERLEY.—W. T. Harris, J. Delbridge, Dec. 20: The 90 cross cut south is showing a little black copper in the joint. The joint contains flookan and friable spar. The 90, east of engine-shaft, is still yielding some good ore, and we hope to stop this ground shortly. The 45 east is turning out fair quantities of second-class ore. We hope to raise more ore in future.

PATELEY BRIDGE.—C. W. Williams, Dec. 21: There has been no particular change to refer to in the mine during the past week. The Rake vein, in the 39, is still looking exceedingly promising, and an important improvement may at any time take place; and, judging from the general character of the lode, it is only fair to infer that a rich course of ore will be met with at no great distance in the advance of the present forebore. We are to day fixing a new balance-bob on the top of the engine-shaft, as the old one was quite rotten, and might cause a serious accident, consequently the engine is at present idle, and the men unable to work in the bottom; but I hope to have everything in good working order again to-night, and to resume working to-morrow.

PEDN AN DREA CONSOLIDATED.—W. Tregay, W. Pridaux, John Pope, Dec. 20: Summary of the lode (Martin's) in the 140 east winze is worth 40s. per fm. The 40 east end is now against a cross-head, consequently we cannot report the value of the lode, which up to the cross-head was worth 40s. per fathom. Such cross-heads in these mines have always favourably influenced the lodes. In the 130 west end the lode (Martin's) is worth 30s. per fathom.—Cordozo's: In the 100 west end the lode (north) is worth 10s. per fathom. In the 90 west end the lode (north) is worth 12s. per fathom. In the 80 west rise the lode (north) is worth 12s. per fathom. In the 70 west rise the lode (north) is worth 12s. per fathom. In the 60 west end the lode (north) is worth 2 1/2 tons per fathom. In the 55 west end the lode (north) is worth 12s. per fathom. In the 47 west end the lode (north) is worth 8s. per fathom.

PENNERLEY.—W. T. Harris, J. Delbridge, Dec. 20: The lode in the 1-0 east increases in size and value. The prospects for an early improvement are most encouraging. The run of ore gone down in the bottom of the 120 has evidently taken a greater dip eastward, consequently there is a longer distance to drive than at first calculated upon. The lode in the 120 contains a good mixture of lead and blende of a promising character. The stopes in the back of this level is worth 1 ton of lead per fathom. The lode in the east end is 1 ft. wide, carbonate of lime and occasional stones of ore. This level is being driven towards Bland's shaft, which is about 9 fms. ahead, and there are encouraging indications of a run of productive ore ground being met with in course of driving. This and the 430 we propose pushing forward with all possible speed. The lode in the 80 west is 2 ft. wide, producing 2 tons of ore per fathom. The three stopes in the back of this level are yielding ore as reported last week—2 tons per fathom respectively. We have commenced sinking a winze in the bottom of the 120 west, and the lode is doing so. The stopes from the west winze, below the 75, are worth 2 tons per fathom. All other bargains and the pitches are making usual progress as last reported.

PLYMOUTH.—J. Garland, Dec. 21: There is not any change calling for special remark in either of our underground bargains since my report last week. To-morrow being setting day a detailed report shall be forwarded you early next week.

revival in this neglected class of investment—a class of investment which, in the end, will, I venture to assert, hold its own in point of safety and return with any other. The principal transactions have been in Aberdare, Asheton, and West Asheton, Catherton, Wharfedale, West Chiverton, West Tankerville, Pennerley, Pandora, Rookhope, East Van, Penstruthal, and many other English mines, whilst Eberhardt, New Zealand, Kapanga, Eschquer, Rio Tinto, and other foreign mines have caused attention. From Croker I hear very good news, and the mine appears to show great improvement—the lode in the top of bottom of the 48 is 4 ft wide, and worth 20¢ per fathom, and the 108 is worth 15¢ per fathom; and further improvements may be looked for at once. Rookhope is likewise looking up, 35 tons of lead (for the month) will be sold to-morrow. West Tankerville and Pennerley are looking much better. From Pandora I hear that some important discoveries have been made, and the next report will be of a very encouraging and satisfactory character. I still consider this mine will turn out a great prize.

I cannot conclude these remarks without again urging my readers to make their investments during the present month. As I have before remarked, December is the buyers' best month; and I write from experience when I maintain that capital now judiciously distributed in *bona fide* promising undertakings is certain to bring its reward, not only in good dividends, but in that which is still more welcome, the much greater growth of itself.

ALFRED E. COOKE.
76, Old Broad-street, London, E.C., Dec. 22.

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The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, DEC. 22, 1876.

IRON.	£ s. d.	English, ingot, f.o.b.	£ s. d.
Plg. S.M.B. f.o.b., Clyde.	2 18 6	81 0 0	—
Scotch, all No. 1.	3 1 0	82 0 0	—
Birs, Welsh, f.o.b. Wales.	2 6 6	83 0 0	—
" in London.	6 15 0	84 0 0	—
" Stafford.	8 0 0	85 0 0	—
" in Tyne or Tees.	8 0 0	86 0 0	—
" Swedish, London.	10 10 0	87 0 0	—
Rails, Welsh, at works.	5 7 6	88 0 0	—
Railway chairs.	—	89 0 0	—
" spikes.	—	90 0 0	—
Sheets, Staff., in London.	9 15 0	91 0 0	—
Plates, Staff., in London.	9 10 0	92 0 0	—
Hoops, Staff., in London.	8 15 0	93 0 0	—
Nail rods, Staff., in Lon.	7 15 0	94 0 0	—
STEEL.			
English, spring.	14 0 0	95 0 0	—
Swedish, keg.	17 0 0	96 0 0	—
" fag. ham.	17 10 0	97 0 0	—
LEAD.			
English, pig, common.	22 0 0	98 0 0	—
" " L.B.	22 5 0	99 0 0	—
" " W.B.	23 0 0	100 0 0	—
" sheet and bar.	23 0 0	101 0 0	—
" pipe.	23 10 0	102 0 0	—
" rel.	24 0 0	103 0 0	—
" patent sheet.	24 15 0	104 0 0	—
Spanish.	21 10 0	105 0 0	—
QUICKSILVER.			
Flasks of 75 lbs., ware.	8 8 0	106 0 0	—
SILVER.			
Silesian or Rhensian.	21 10 0	107 0 0	—
English, Swansea.	22 10 0	108 0 0	—
Sheet zinc.	25 10 0	109 0 0	—

* At the works, 1s. to 1s. 6d. per box less for ordinary; 10s. per ton less for Canada; 1X ds. per box more than 10 quoted above, and add 8s. for each X. Terne-plates 2s. per box below tin-plates of similar brands.

NOTICE.—The Lombard Exchange room, having been let to a bank, will be closed on the 31st instant, but we are glad to be able to state that a new and exclusive Metal Exchange will be opened at Lombard-court on Jan. 1 next, under the management of an influential committee, to which the whole trade has given its support. It is generally hoped and expected that the new arrangements will greatly facilitate business, especially as the official daily metal reports of the committee, which have given such universal satisfaction, will be continued.

REMARKS.—The amount of business transacted keeps diminishing as the year draws nearer to its close, and next week being a broken one, on account of the holidays, will probably not show any amendment upon its immediate predecessors, but notwithstanding the contraction of business, and the usual realisations which take place at this period, prices generally have only been slightly affected, and, on the whole, continue to be very well maintained, and the markets, although dull in tone, are comparatively steady. With a spare attendance of buyers and sellers it is always better to defer operating, as nothing of importance can be advantageously negotiated while so many dealers are away, and, therefore, valuable as time undoubtedly is, yet at the present moment little is likely to be lost by taking a long holiday, but, on the contrary, a few extra days relaxation for recruiting one's health and strength may be of great benefit and a positive gain, and it is to be hoped that all will return to work with a good will and possessed of greater vigour than before. Too much, however, must not be expected, all danger will not end with the troubles of this year, and small dealers should avoid risks, as the hindrances to trade are not yet removed, and we fear that the opening of 1877 will be encumbered with much of the evil effects and objectionable matters still remaining unsettled, foremost of which are the political affairs relating to Eastern Europe.

It is in that direction that all eyes are turned, and the intimation that the armistice will be prolonged to March 1 is anything but a cheerful prospect. This means another two months of suspense and a time of uncertainty and alarm, a limited trade, postponement of any permanent improvement in prices, and very small profits. After such a protracted depression in business it is most unfortunate that politics should still interfere so much with the development of trade. Had the eternal Eastern Question been disposed of ere this satisfactory, the ensuing year would have commenced under very favourable and different auspices, and we should have been anticipating good results, but until the Turkey incubus is removed everything will be kept in abeyance. The difficulties, however, are of such a chronic character, and are so serious and complicated, that very little reliance is felt in the ultimate success of any remedy that may be suggested, and it is now very generally feared that war will have to decide the fate of the Ottoman power.

COPPER.—The following statistics clearly show the present position of this metal, and may be taken as the best criterion of the course of the market. When the figures are analysed it will be seen that the stocks and output of Chili copper on Jan. 1 last was 25,363 tons, as compared with a stock and output on Dec. 15 of 35,736 tons, which shows the large increase of 9373 tons; while the stock and output of fine Australian (chiefly Wallaroo) on Jan. 1 was 8329 tons, as against 4355 tons on Dec. 15, showing a decrease of 3974 tons. This latter result is all the more favourable to fine sorts of copper, as the total shipments of Lake Superior copper from America to Europe from Jan. 1 to Dec. 6 has been 6390 tons. It is very clear, then, that the consumption of fine sorts of copper has been very large, and no doubt specially for cartridge purposes. Whilst the general statistics is unfavourable to the price of copper, the analysis of some give rise to the belief that the difference between the value of Chili bars and Wallaroos may not only remain as great as at present, but may probably get larger.

STATEMENT ON DEC. 15.

Stock in Liverpool and Swansea	Tons	14,207
" London (about 2500 tons Australian)		2914
" Havre		9040
Total		26,161
Afloat from Chili advised by mail		7890
Total		33,951
" Australia advised by mail		1855
Total		35,806
" Chili advised by cable		4390
Total		40,196
Jan. 1.	1876.	Dec. 15.
Australian stocks	Tons 5,954	Tons 2,500
" afloat	2,345	1,855
Total	8,299	4,355
Price of Wallaroo	£ 90	£ 85 10s.
Decrease	Tons 3974	
Chilian stocks	Tons 14,053	Tons 23,136
" afloat	12,308	12,690
Total	26,363	35,736
Price	£ 81 10s.	£ 75 10s.

The market during the week has undergone very little change, either in demand or price, but the announcement of the charters for the first 14 days of December being advised only as 1420 tons created a slightly better tone, and arrested momentarily any further downward tendency, and amongst a few spe-

culators there has since been a disposition to buy three months bars at 70¢; and as there do not appear to be any sellers at present who are willing to accept such a price for forward prompts, the market will probably remain firm at this price until the next advices are received.

IRON.—This trade varies very much at the several iron districts throughout the country. At one place the business transacted is spoken of as being satisfactory, whilst at another it is particularly dull; for instance, at Leeds everything is suffering in consequence of the miserable state of the iron trade, whereas in Barrow-in-Furness activity is displayed, and there is said to be a good improvement upon the previous quarter, and full rates are realised. A better tone prevails in the iron shipping trade, and stocks of the various qualities are declining. Iron ore is firm in price. From Birmingham there is also favourable accounts received, especially in the hardware branches, and Wolverhampton advices speak of business being steady in that town. At Stoke-upon-Trent it is stated that there is an increase in the number of specification given out, and that pig-iron has been in good request for January delivery, and sellers have looked as much as they care to sell at present rates. Ironstone is also in fair demand, and firm. From Darlington the accounts for manufactured iron are satisfactory; in some of the departments there is activity, but rails are still dull, and pig-iron remains quiet. No. 1, 49s. 6d. Ship-plates have improved both in price and demand.

A steady business is doing at Barnsley, and the deliveries of pig-iron have been up to the average. There has not been quite so much doing in Middlesbrough, nevertheless prices remain unaltered, and a good business is anticipated at the turn of the year. No. 1, 49s. 6d. Pipes and castings are in request, and in excess of the average. Manufactured iron (rails excepted) is in a healthy condition, and the mills are fairly engaged, plate mills especially. In Newport the works are better employed, and prices are steady. Pig-iron stocks are decreasing. Our market in London, however, is quiet, but steady. For India several specifications of merchant bars have been put in hand, and makers are firm at 61. 15s., although inferior brands have been sold 2s. 6d. cheaper. Sellers are looking for higher prices, and anticipate an increasing number of orders. Light rails have been sold as low as 61. 15s. f.o.b. London. Swedish bars are dull; prices unaltered.

In Scotch pigs the market has not varied very much, and m.m. are now quoted 55s. 6d. for cash, sellers.

Week ending Dec. 18, 1875	Tons 8,156
Week ending Dec. 18, 1876	8,457
Increase	321
Total decrease for 1876	71,883
Imports of Middlesbrough pig-iron into Grangemouth:—	
Week ending Dec. 18, 1875	Tons 3,850
Week ending Dec. 18, 1876	3,970
Increase	120
Total increase for 1876	67,896

The best evidence of a general revival in trade would be a settled improvement in iron, but according to the various accounts mentioned above there is only a partial recovery at present; it would, however, be greater were it not for the Belgian competition, and we fear the low prices still quoted these qualities will effectually prevent any rise in English. The trade of the country must not be allowed to suffer any longer from dearth of labour; the community at large cannot afford to be ruined simply because the interest of a certain class is at stake, and foreign labour must be introduced if English keeps too high.

LEAD.—The market has slightly receded, and business has transpired at reduced prices, both in English and Spanish. The latter at 21 1/2, 10s., sellers remaining.

SILVER.—The transactions in this metal have been limited, and lower transactions accepted. Silesian is now quoted 21 1/2, 10s. to 21 1/2, 15s. At public sale yesterday 75 tons of zinc was sold at 25s. 5s. to 25s. 10s., being 7s. 6d. per ton below last sale. The price of Vieille Montagne brand has been reduced in Paris, and probably the decline in our market is partly from this cause.

QUICKSILVER.—From second-hands and outside parcels this metal can still be brought below the price asked by the leading importers of Spanish.

TIN-PLATES.—Previous rates continue to be maintained, and the works are fairly supplied with orders, and have quite enough work to carry them well through the remainder of the year.

TIN.—Last week finished with a dull market in all descriptions; sellers were offering Australian at 75s. 10s. and Straits 20s. higher for cash, but buyers declined purchasing on these terms, and as sellers were not inclined to reduce their quotations, no business worth reporting resulted. On Monday prices were slightly weaker, and Straits for cash and February was sold at 75s. 10s. Australian quoted at 75s.; English obtained at 80s. On Tuesday there was no particular change in the market. Straits quoted at 75s. 10s. to 76s., and 75s. said to be accepted for the middle of February, Australian still being procurable at 75s. On Wednesday the market was quiet, and the price of hematite was 10s. 10s. for spot and March delivery, English and Australian keeping as before. On Thursday the firmness of prices continued, and an advance in some instances of 10s. per ton was realised in Straits, the principal of the business being between 75s. and 76s. 10s. for cash and various forward prompts, but no change in Australian, which was sold at 75s. for arrival and cash. Prices are unaltered to-day, and the market closes steady.

THE IRON TRADE.—(Griffiths's Weekly Report).—Friday Evening.

The Glasgow market for Scotch pigs has been quiet over the whole week. To-day, however, a large business was done in the morning, and prices close at 58s. 4 1/2d. cash—4 1/2d. less than last week. This Friday afternoon the market was very idle. Nothing done. We quote makers' No. 1 iron—Gartsherrie, 65s. 6d.; Coltness, 70s. 6d.; Calder, 67s. 6d.; Langloan, 66s. 6d.; Summerlee, 64s.; Monkland, 59s. 6d. f.o.b. Glasgow: Gleggarnock, 64s.; Eglinton, 60s. f.o.b. Ardrossan; Shotts, 65s. 6d. f.o.b. Leith; Kennel, 60s. f.o.b. Boness. As we draw near the close of the year, the markets here, as a natural consequence, are quiet; this is always the case at this season. The business done this week is all to supply temporary wants; indeed, these are the kind of orders which we have had here over the last month. There is a strong disposition to buy steel rails and the best brands of iron for forward delivery in certain quarters, but the present reviving prospects of the market prevent the Staffordshire, Yorkshire, and Shropshire manufacturers from going in for large parcels of finished iron for forward delivery, and on this account none of the extensive works have booked large parcels of iron for delivery more than two or three months ahead. The same remark applies to steel rails. We are glad at last to report a decided improvement in the tone of our market for iron rails, and an established advance in price of 7s. 6d. per ton; this is very encouraging. The kind of iron most in request now is fencing rods, nail rods, and sheet-iron. In the latter a good stroke of business is being done, but the Staffordshire makers, one and all, say that the present prices leave them very bare of profits, and the next change in prices, if they are to continue to take orders, must be in an upward direction. The meetings at the Middlesbrough and Barrow Exchanges were quiet this week. At the former the business done was not large; at the latter transactions were few, but the price of hematite was very firm. In Glasgow the market is about the same. Business is very monotonous here, with a little more activity at this morning's market.

At the Birmingham Exchange, on Thursday, in the manufacturing department nail rods and wire rods were looked after most by buyers. A sale of 500 tons of the latter was made by a Shropshire house on this Exchange; and nail rods, particularly the Bromley brand, were in good request. The sheet-iron makers are all occupied, but the makers, one and all, complain of the unprofitable state of this part of the business. Orders for boiler plates are by no means plentiful. The galvanised-report market was firm, but the price of hematite was very firm. In Glasgow the market is about the same. Business is very monotonous here, with a little more activity at this morning's market.

The Wolverhampton Quarter-day will be held the second Wednesday, and the great meeting at Birmingham takes place the second Thursday of the next month. The tin-plate makers will hold a quarterly meeting at Gloucester in January.

MESSRS. FRY, JAMES, AND CO.—COPPER: There is a continued absence of buying which must be causing consumers to run bare of stocks. The business of the month has been pretty much limited to a few transactions in Chili bars, down to 75s. 10s. a ton, and a moderate amount of sheets for India. IRON is unimpairedly dull. IRON has been selling slowly at declining rates. LEAD is barely so firm, but makers generally are not anxious sellers. SILVER very quiet, with turn of prices in buyers' favour. TIN PLATES in small demand only.

COPPER.—Messrs. Harrington, Horan, and Co. (Liverpool).—Arrivals here during the fortnight of West Coast, S.A., produce—Deva, from Valparaiso, 60 tons regulus, 325 tons bars; Valparaiso, from Valparaiso, 600 tons regulus, 100 tons ingots; Beta, from Carrizal, 732 tons regulus. Stocks of copper (Chilian and Bolivian) in first and second hands, likely to be available, we estimate at—

	Ores.	Regulus.	Bars.	Ingots.	Barilla.
Liverpool	602	564	9,327	77	—
Swansea	681	214	3,183	—	—
Total	1283	778	12,510	77	—
Representing about 14,207 tons fine copper, against 14,170 tons Nov. 30; 12,004 tons Dec. 15, 1875; 10,490 tons Dec. 15, 1874; 21,690 tons Dec. 15, 1873. Stock of Chili copper in Havre, 6255 tons fine, against 935 tons Dec. 15, 1875; stock of Chili copper afloat and chartered for to date, 12,500 tons fine, against 3,394 tons Dec. 15, 1875; stock of foreign copper in London, chiefly Australian, 2410 tons fine, against 6957 tons Dec. 15, 1875.					
According to the Board of Trade returns, the total imports and exports into and from this country for the first eleven months of the following years were:—					
IMPORTS.					
Copper in ores	Tons 6,819	7,425	10,364		
Ditto, regulus	11,045	14,239	11,593		
Ditto, bars, cakes, and ingots	34,924	36,294	35,941		
In pyrites (estimated)	11,729	12,593	12,194		
Total imports	64,517	70,551	70,397		
EXPORTS.					
English copper, wrought & unwrought	20,592	21,063	20,362		
Foreign copper, unwrought	23,112	13,520	15,922		
Yellow metal	13,040	12,636	11,575		
Total exports	56,744	47,219	47,859		

According to advices from Valparaiso the comparative exports of fine copper from Chili and Bolivia to all parts of the world during the first nine months of the following years were—1876, 38,328 tons; 1875, 35,385 tons; 1874, 34,985 tons; 1873, 31,000 tons; 1872, 35,057 tons; 1871, 30,770 tons; 1870, 35,688 tons.

MESSRS. SANFORD AND BIRD.—Business in manufactured iron is as good as can be expected so near the end of the year. In the Cleveland district makers are fairly engaged on plates, bars, and angle iron, while in Wales some considerable orders have been secured for rails. In steel rails also several large orders have been placed. Pig-iron remains steady at about 59s. cash for Scotch warrants. COPPER has remained exceedingly quiet for some weeks, and a limited business only has been done down to 75s. 10s. for g.o.b. Chili bars, closing slightly firmer. In Australian, Wallaroo has kept steady, and a fair business has been done at 85s. 10s. spot and forward delivery, other descriptions have been neglected and difficult of sale. English-manufactured closes a little easier in price, except as regards India sheets, in which a very good business has been done at 57. 10s.—TRY: This market relaxed somewhat suddenly on some considerable sales of Australian, and at the fall, which amounts to about 2¢ per ton, transactions have been on an exceedingly small scale. Business has generally been quiet, there has been a complete absence of buyers either for speculation or export, and at the same time holders have been for the most part unwilling to meet the market. We do not anticipate any alteration in present quotations until the end of the year, when we may then obtain reliable statistics and information as to our future supplies, about which there is at present much difference of opinion. The market closes with a somewhat better demand for Australian at 75s. and Straits at 76s., with little offering. TIN PLATES: A very fair business has been done, principally in coke qualities for prompt and extended delivery. Prices still remain low and unremunerative. The exports keep pretty steady.

MESSRS. PIXLEY AND ABELL.—GOLD: The withdrawals from the Bank during the week comprise 350,000 for Germany and about 60,000 for America. The demand for export has now to a great degree ceased, and arrivals of any importance would probably be sent into the Bank. The following amounts have come to hand:—21500 from the Cape; 15,000 from India; 21,400 from Brazil; total, 55,900. The P. and O. steamer takes 30,000 to Bombay. SILVER: There has been a great reaction in our market, and prices have fallen considerably. At the beginning of the week lower exchanges were reported from India, and buyers were unwilling to operate until the result of the ten tenders for the India Council was known; when it was found that the allotments were made at 1s. 9 1/2d. to 1s. 9 3/4d. per rupee, or nearly 4 per cent. lower than last week. Bar silver has declined to 55 1/2 per ounce, at which rate the amount brought by the West Indian steamer was sold, thus showing a fall of nearly 2¢ per ounce since our last circular. The arrivals during the week have been about 20,000 from New York and 10,000 from Germany. The P. and O. steamer leaving to-day takes 40,140 to Bombay.

THE MINING SHARE MARKET has been a little more active this week for one or two prominent stocks, but, on the whole, there is not much doing, and we must not look for much change or for much activity till after the Christmas holidays and the commencement of the new year. We hear of no particular change in tin. At the Cornish ticketing on Thursday the standard for copper ores declined 1 1/2 ls.

The shares in TIN MINES continue flat. Carn Brea are 37 1/2 to 40; Dolcoath, 40 to 42 1/2; South Croft, 7 to 7 1/2; Tincroft, 20 to 22; Wheal Agar, 1 1/2 to 2; Wheal Grenville, 17s. 6d. to 23s. 6d.; Reliance Consols, 10s. to 15s.; the lode in the 24 end contains rich tin. Pitches have been set, one at 9s. in 1 1/2, the other at 11s. in 1 1/2. New Consols, 1 to 1 1/2; West Godolphin, 2 1/2 to 3 1/2.

With regard to COPPER MINES, West Tolguish shares are quoted at 62 1/2 to 65; at the meeting, in Cornwall, the accounts showed a profit on two months' working of 250s., and a balance in hand of 887 1/2, out of which a dividend of 1 1/2 per share (512s.) was declared. The copper ores credited in these accounts realised 3915s., and the silver made and to be credited in next account realised 3340s., or 8000 more than the previous two-monthly sales. The mine is looking well. In the 135 west the lode is worth 12 tons of ore per fathom. The 135 east is worth 70¢ per cubic fathom, or 140¢ for the width of the lode. The next two-monthly dividend will be at least 17 1/2 per share. Devon Great Consols, 4 1/2 to 5; in the 80, west of Jeffery's, the lode is larger, and contains a little muddle. The points in operation at this mine are worth in the aggregate 193¢ per fathom; the monthly sale of copper ores, on Thursday, realised 3229s., without carriage. Parys Mountain shares are flat, at 10s. to 12s.; the 90 fath level cross-cut south is showing a little copper in the joints. The agent adds that he hopes to raise more ore in future. East Caradon, 1 1/2 to 1 3/4; Marke Valley, 1 1/2 to 1 3/4; Penstruthal, 9s. to 11s.; Prince of Wales, 3s. to 4s. Wheal Crobar shares have advanced to 2 1/2 to 3, the 100s. or pioneer lode, to which we referred last week, has again come into ore, worth 25¢ per fathom. The 120 end east, which is some fathoms behind the 100 end, is looking better, and likely also to come into ore, which will be very important.

LEAD MINES.—Among the shares heard most of on the market may be mentioned Roman Gravel, 13 1/2 to 14 1/2; the lode in the 106 north is 8 ft. wide, and worth 1 ton per fathom. South it is 6 ft. wide, and worth 2 tons per fathom. The winze below the 95, south of flat-rod shaft, is worth 3 tons per fathom. East Van shares have fluctuated during the week, having been as high as 10 1/2 to 11, and as low as 9, they leave off 10 to 10 1/2; Tempest's shaft is now down to the 25. Tankerville, 8 1/2 to 9; no particular change here. Rookhope firm at 3 1/2 to 4; Great Laxey, 19 1/2 to 20 1/2. North Laxey, 10s. to 12s.; mine improving. Glenroy, 1 1/2 to 2; the stopes in the mine are worth 20¢ per fathom, and working at 4¢. The first sale of ore (about 100 tons of blende and over 10 tons of lead) will be made in about a fortnight. Leadhills, 6 1/2 to 7; Glyn, 2 1/2 to 2 3/4; Great West Van, 3 1/2 to 4; Ledywell, 1 1/2 to 1 3/4; Pennant, 5 1/2 to 6; Pennerley, 1 1/2 to 1 3/4; Bodidris, 1 to 1 1/4; Llanrwst, 2 1/2 to 3; Van, 3s. to 4s.; Van Consols, 1 1/2 to 2; West Asheton, 20s. to 25s.; West Chiverton, 18 to 19; West Croft, 12 to 13; West Tankerville, 1 1/2 to 2 1/2; Clementina Lead, 3s. to 4s.; Derwent, 4 to 4 1/2.

The principal transactions in FOREIGN MINE shares have been in St. John del Rey, which close at 32s. to 34s.; at the meeting (particulars of which will be found in another column) a dividend for the half-year of 20 per cent. was declared. Santa Barbara, 2 1/2 to 2 3/4; the advices this month show a profit of 705s. 8s. 1d. The returns were 3719 oits. of gold, worth 1615s. 8s. 9d., and the working cost 910s. 0s. 5d. At this time last year we called attention to this mine as one of the prizes for 1876, and it has commenced paying good dividends, and the shares have risen cent. per cent. Argentina, 3 1/2 to 4; Condes of Chili, 4 1/2 to 5 1/4; Chontales, 6s. to 8s.; Eberhardt and Aurora, 8 1/2 to 8 3/4; Eschquer, 2 1/2 to 2 3/4; Flagstaff, 1 to 1 1/4; Frontino and Bolivia, 1 1/2 to 2; I.X.L., 18s. to 20s.; Javali, 10s. to 12s.; New Quebrada, 3 1/2 to 4; Pastorena, 4s. to 6s.; Richmond, 8 1/2 to 9; San Pedro, 20s. to 25s.; South Aurora, 6s. 3d. to 8s. 9d.; Tecoma, 3 1/2 to 4.

The Market for Mine Shares on the Stock Exchange during the week has been dull and stagnant, presenting all the features usual at this season of the year. Business becomes more restricted the nearer we approach the Christmas holidays; although without animation, the tendency has been by no means unfavourable, while the general impression is that with the opening of the new year business will steadily increase.

The almost invariable practice of directors of public companies being qualified by vendors has been prominently brought before the Court of Chancery in Sir Edwin Pearson's case, connected with the winding up of the Caerphilly Colliery Company. It was a limited that 25 share warrants of the nominal value of 125s. were deposited with a bank in Sir Edwin's name to provide him with the qualification for a director, but Sir Edwin contended that the shares were placed in his name in consideration of some claim he had against one of the promoters in respect of stockbroking transactions, and that he really never had the shares at all. Vice-Chancellor Bacon considered that the liquidator had established the fact that the vendors had supplied qualification shares; indeed, this was only faintly and equivocally denied. This the Vice-Chancellor said was such a dealing as was not lawful for a director of a company to engage in. It was not lawful for him to obtain a profit out of a sale to a company, and his Lordship must hold Sir Edwin liable for a misfeasance within the meaning of the section under which the application was made. He was, therefore, ordered to pay the 125s. to the liquidator. This decision appears to cover a somewhat wider field than previous ones, since it includes the common case of the vendor or the promoter, his agent, giving the directors the cash wherewith to purchase their qualification. Sir Edwin really appears to have suffered from his connection with the transaction, because it was done openly instead of, as usual, surreptitiously, and to the still greater prejudice of the capitalists who may be induced to invest.

New Zealand Kapanga, 4 1/2 to 4 3/4; a satisfactory report has been obtained by a shareholder from the New Zealand Government engineer, and has been circulated amongst the members. It is considered to fully bear out the encouraging opinion given by the company's agent in his reports, and expresses a decidedly favourable opinion of the mines, which he states are very valuable.

St. John del Rey are officially quoted as having changed hands

to-day at 242½, and the closing price is 225 to 245. No telegram has been received during the week, but advices are to hand to Nov. 18; they state that during the first 17 days of November there had been uniformly good duty performed in the mine department, the quarrying, hauling, and delivery of mineral having been carried on with great regularity, and the output of ore being rather above the usual average. Between the 3d and 16th they had had a very acceptable rainfall of 3.25 in., thus augmenting their supply of water, and giving them sufficient power to work not only the pumping and hauling machinery, but also the stamping-mills, arrastras, and other machinery of the reduction department at the desirable speed. Although there has been more mineral reduced in this first division of November—1570 tons—than was pulverised in the same division of October—1383 tons—a difference of nearly 200 tons, yet the gold return was greater in October both as regards standard yield—7.703 per ton—and the daily produce of 1331 oits. The mineral had more poor mixed with it, and been much lighter, hence the larger quantity stamped, and the lower return of gold. The gold troop was dispatched from Morro Velho, taking nine bars of gold, weighing in all 33,947 3 oits.—374.1656 lbs. troy for shipment per Douro (s.) for England. The gold has duly arrived. Santa Barbara Gold, 2½ to 2½; the last accounts received from this mine per Douro shows that the profit for four months ending October was 2978.16s. 3d., or in round numbers 9000% per annum. This on a paid-up capital of 20,000% should give a very satisfactory dividend, and next year larger profits are anticipated.

Cndes, 5 to 5½; the two small samples of regulus sold this day in Liverpool realised 102½ per ton and 25½ per ton respectively. By the Pacific boat, in to-day, 22 tons of ore have been received; by the Galicia, due on the 8th of next month, a further shipment of 55 tons has been made, and by the succeeding steamer 150 tons are expected. The mines are looking as well as when last reported on. Argentine, 6 to 6½; important advices are expected from the mines next month.

Richmond, 8½ to 8½; the usual telegram gives the week's run at \$15,000. The refinery this week has produced doré bars to the value of \$30,000. The manager's report states that but little work has been done during the previous week either in the 800 or 700 drifts, but that the 600 drift has reached the ore making down from the drift above. The prospecting drift started at 33 ft. above the 600 is still in ore, the total distance driven in ore to date being 180 ft., but it was not intended to work this body of ore till the drift was holed to the No. 2 winze and the ventilation completed. No change is recorded in the great chamber (Potts). The drift from the rise in the Lizzette Tunnel is not looking so well as it was, the ore being of low grade, but this is believed to be only a temporary falling off in the value of the ore. The new shaft is in progress and ready for the first sets of timbers. The furnaces are in good order, smelting large quantities of ore, and doing better work than ever before. As the week's runs have of late been comparatively low, it appears that they have been using up low grade ore. The immense body of ore at the 600, through which 180 ft. has been driven horizontally without reaching its end, is not yet available, owing to the necessity of completing the ventilation. The drift in the West Hill body of ore is running through a stratum of low grade ore at present, which the manager believes will soon improve. We learn that Mr. Probert has returned to Eureka. The large hydrocycle additional furnace he has had constructed at San Francisco will soon be at work, and add largely to the smelting power.

Eberhardt and Aurora, 8½ to 8½; the meeting is convened for Jan. 4, when the declaration of a dividend will be considered, and the directors' remuneration fixed. Capt. Frank Drake's report states that the 10 months' working to Nov. 1 show that nearly 8275 tons (18 cwt. to the ton) of ore has been mined, and 7194 similar tons milled, leaving 1079 tons at the mill. The assay value of the ore worked was \$547,500, of which 81 per cent. was extracted, giving \$448,003 worth of bullion. This was done at a cost of \$206,503, leaving \$241,500, or 48,300% profit. From this profit must be deducted the expenditure on the tunnel, and the loss on the sale of bullion, both product and cost, being estimated on the basis of 5s. per ounce for the silver. The ore in sight will last to the end of the year. Very little prospecting has been done, owing to Capt. Drake having received orders to test the mine to a great depth by a tunnel and the incline. The ground has been disturbed in the third level, but he considers they are again in the ore channel. The report is encouraging as to the future, but no pay ore has anywhere been cut. The future of the mine depends on discoveries to be made in depth, and as Capt. Drake remarks, that "they have their tunnel enterprise fairly started, together with the incline and other developing points—all to be pushed vigorously, and requiring money," it would appear to be most injudicious, if not suicidal, to declare a dividend at present, especially as Capt. Drake, replying to the board says—that "he admits they have a handsome exchequer, but notwithstanding this, in view of the facts already alluded to, he would not, until they are further advanced in their prospecting enterprise, advise the payment of a dividend." He is expecting sufficient rails to lay 625 yards of single track in the tunnel; they are at present about 125 yards in.

Exchequer, 2½ to 2½; the slopes continue to look well, and turning out good ore. From recent advices the mill should now be complete, I.X.L., 2 to 1½; the 200 ft. level is now in 320 ft., and the lode is 6 ft. wide, with spots of good ore. Chicago, 6 to 6½; a telegram has been received announcing that during November the profit had been \$7000. The annual product of the mines of Colorado is given by the governor at \$8,000,000, and he predicts that with the development of the San Juan district, in south-west Colorado, next year's production will reach \$10,000,000.

The market for Hydraulic or Gold-washing shares has not exhibited much animation, and prices are unchanged. The latest advices from California state that washing has very generally commenced, and with good prospects, there being more claims at work than heretofore. Blue Tent, 3 to 3½; the news from this mine continues good, washing was steadily going on, and great expectations are held out as to the result during the season. It would seem that in the neighbourhood the mines are looked upon as very valuable. Oregon (pref.), 4 to 4½; the particulars of the annual meeting will be found in another column. The statement made by the Chairman was considered very encouraging, while the profit made from the working during last season, as shown by the balance-sheet, looks well for the present season. For years a general contest between the owners of hydraulic mines in California and the farmers whose lands are affected by the detritus from these mines has been impending. The final struggle, as will be seen from the statements in last week's *Mining Journal*, cannot be much longer postponed, and both parties are awakening to the gravity of the position, and preparing to test their respective rights before the Courts. The owners of hydraulic mines are combining for mutual protection, and have engaged the best legal counsel to conduct the defence. The system of combination begun by the farmers is met by a similar association on the part of the miners, and it is possible that in time all those interested in the matter will be arrayed in two solid bodies. But the disposition of both miners and farmers seems to be to have the controversy settled amicably, and in a manner which will be just to the conflicting interests. The two great interests of mining and agriculture are mutually dependent upon each other; each has certain rights which the other should respect, and everything points to the conclusion that an equitable compromise will be definitively arranged.

Lead Mines have been without much change. Van, 38 to 40; there is no change reported from the mine. Everything is progressing well, and in a satisfactory manner. East Van, 10 to 10½; it is expected the shaft will be holed to-morrow. Assheton, 1½ to 1½; West Assheton, 1½ to 1½; the developments on the Tan-y-Bwlch lode are opening out in a satisfactory manner. Grogwinion, 5 to 5½; a parcel of 100 tons of lead has been sampled for sale on the 29th inst. The mine is reported to be looking as well as ever. Red Rock, 2½ to 2½; the manager reports that he has discovered a rich course of ore in the bottom level, and that work at all other points is being pushed ahead rapidly. Wye Valley, 5½ to 6½; the mine at all points shows further improvement, and especially at the 22 east and at the end of the adit. West Wye Valley, 3½ to 3½; the latest

news is to the effect that the underground works are making capital progress, and that the reserves of ore ground are being steadily increased. South Cwmystwith, 2½ to 3½ cwt. new shares; the report of the first annual meeting appears elsewhere. Good discoveries of lead have been made, and the manager states that profitable sales will commence during next summer. St. Harmon, 3 to 3½; the mine continues to open out well at all points, and particularly in the deeper levels.

Pennerley, 1½ to 1½; the prospect for an improvement in the 130 east is encouraging as the lode increases in size and value. The lode in the 80 west is producing 2 tons of lead ore per fathom. All other bargains are making usual progress. Pateley Bridge, 2½ to 3½; the Rake vein in the 30 is looking promising, and an improvement may be expected at any time. No change in any part of the mine. At West Pateley Bridge the north-west level from No. 2 shaft is worth 1 ton of lead ore per fathom. In a few fathoms further driving it is expected that the North Rake vein, a strong and well defined lode, will be intersected. The other underground operations are progressing with all speed.

Subjoined are the closing quotations:—
Assheton, 1½ to 1½; Carr Brea, 39 to 41; Devon Great Consols, 4½ to 4½; Dolcoath, 40 to 41; East Caradon, 1 to 1½; East Van, 10 to 10½; Glyn, 2 to 2½; Great Laxey, 10½ to 10½; Great West Van, ½ to ½; Great Vor, ½ to ½; Hingston Down, ½ to ½; Leadhills, 6½ to 6½; Marke Valley, 1½ to 1½; Parys Mountain, ½ to ½; Pateley Bridge, 2½ to 3½; Pennerley, 1½ to 1½; Penstruthal, 1½ to 1½; 9-10ths; Roman Gravel, 1½ to 1½; Tankerville, 8½ to 9; Tincroft, 10 to 11; Van, 38 to 40; Van Consols, 1½ to 2; West Assheton, 1½ to 1½; West Basset, 4 to 4½; West Wheel Chiverton, 1½ to 1½; West Tankerville, 1½ to 2; Wheel Crebor, 2½ to 3; Wheel Grenville, 1 to 1½; Almada and Tiritio, ½ to ½; Argentine, 5½ to 6½; Birseley Creek, ½ to ½; Cedar Creek, ½ to ½; Cape Copper, 39 to 41; Chontales, 1½ to 1½; Colorado Terrible Lode, 1 to 1½; Condes of Chilli, 4½ to 5½; Don Pedro, 7½ to 8½; Eberhardt and Aurora, 8½ to 8½; Emma, ½ to ½; Exchequer, 2½ to 2½; I.X.L., 2 to 1½; Flagstaff, 1½ to 1½; Frontino and Bolivia, 1½ to 1½; Javan, ½ to ½; Kapanga, 4½ to 4½; Last Chance, 4 to 4½; Malpas, ½ to ½; Malabar, ½ to ½; New Pacific, ½ to ½; New Quebrada, 3½ to 3½; Pestarena, 3 10ths to 5 10ths; Plumis Eureka, 2½ to 2½; Rica, ½ to ½; Richmond Consolidated, 8½ to 8½; St. John del Rey, 33 to 34; San Pedro, 1 to 1½; Sierra Buttes, 1½ to 1½; South Aurora, 4 to 4½; Sweetland Creek, ½ to ½; Teosima, ½ to ½; United Mexican, 2½ to 2½; Blue Tent, 3 to 3½; Oregon (pref.), 4 to 4½.

COLLIERIES.—Business in colliery shares has during the past week been moderately active, a good many transactions having taken place in Newport Abercrom, New Sharlston, Thorp's Gawber, and Chapel House shares. Newport Abercrom shares have been offered, and not finding many buyers are somewhat weak; the latest quotation is 4 to 4½. New Sharlston have been briskly dealt in at 4 to 4½, at which they remain firm. Thorp's Gawber shares at the beginning of the week met with strong enquiry, which is understood came from the neighbourhood of the colliery. This speaks well for the local interest in the concern, and as the executive is now resident at Barsley it is to be hoped is the result of a more satisfactory state of the company's affairs; a few sellers, however, came forward to-day, and the shares close weak at 2 to 2½. Chapel House shares close at 3 to 3½, at which price they have been extensively dealt in, and remain firm. The ordinary general meeting was held on Wednesday on the colliery, a large and influential body of shareholders being present. From the remarks made, and from what we could learn of the feeling of those present, all were much pleased with the colliery, and expressed themselves as being much gratified with their visit to the works. The profits made since last meeting amount to over 12,000%. Since the company was formed the profit at the colliery has amounted to a gross sum of 44,675%. Of this there has been paid in dividends 23,700%, and about 25,000% has been spent on the new works, which when completed will be second to none. This new pit is down 355 yards, and will be completed to the Park Mine at a depth of 400 yards early in the second month of the new year, when opening out will be at once commenced. The shareholders present at the meeting were much pleased to learn that a new seam 1 ft. thick, and producing 7 ft. of solid coal of good quality, had been unexpectedly cut the day previously.

Alliott shares have changed hands at 5 to 5½; the change in the weather has enabled the men at surface to make considerable progress towards the completion of the tramway. The new engines will be in a condition to make a start next week. As the operations being conducted are reported as satisfactory, Clay Halls, 9½ to 10; the amalgamation of the Bilson and Crump Meadows with the Foxes Bridge has interfered with the transaction of business in the shares of the former, and practically none have changed hands. Cardiff and Swansea shares are at 1½ to 1½, and Cakemore, 2½ to 2½. Sandwell Park shares have been dealt in at 2½ to 2½. The iron trade is everywhere reported as satisfactory, and notwithstanding the falling off in the exports, the quantity of iron made for the past month was more than for the same period of last year. The coal trade is also getting brisker in some parts of the country, and a rise in price is expected earlier in the year.

At the Truro Ticketing, on Thursday, 2338 tons of copper ore were sold, realising 11,007.1s. The particulars of the sale were—Average standard, 100% 6s.; average produce, 6½; average price per ton, 3.17s. 6d.; quantity of fine copper, 176 tons 17 cwt. The following are the particulars:—
Date. Tons. Standard. Produce. Per ton. Per unit. Ore copper.
Nov. 23. 3704 2105 19 0 7½ 4.18 0 13s. 7d. 687 13 0
Dec. 7. 1544 102 1 0 7½ 4.13 0 12s. 9d. 63 18 0
21. 2338 106 6 0 6½ 3.17 6 13 7 67 18 0
Compared with the last sale, the decline has been in the standard 1½. 1s., and in the price per ton of ore about 1s. 4d.

At Swansea Ticketing, on Tuesday, 1274 tons of copper ore were sold, realising 6801.14s. 0d. The particulars of the sale were—Average standard for 9 per cent. produce, 94.18s. 10d.; average produce, 7½; average price per ton, 5.6s. 9d.; quantity of fine copper, 98 tons 14½ cwt. The following are the particulars of the two last sales:—
Date. Tons. Standard. Produce. Per ton. Per unit. Ore copper.
Dec. 5. 2639 2 95 6 4 13 13-16 10 0 8 14s. 6d. 67 10 0
19. 1274 94 18 10 7½ 5 6 9 13 9½ 65 17 0
Compared with the last sale, the decline has been in the standard 7s. 6d., and in the price per ton of ore about 7d. On Jan. 2 there will be offered for sale about 1724 tons, from the Cape, Betts Cove, Union, Carracedo, and elsewhere.

ROOKHOPE.—The mine is looking well. There will be sold to-day 35 tons of lead ore for five weeks.

NORTH HENDRE.—The directors, at their meeting on Dec. 15, declared an interim dividend of 2s. 6d. per share, being at the rate of 5 per cent. per annum on the paid-up capital of the company.

NORTH LAXEY.—The lode in the shaft below the 136 is 3 to 4 ft. wide, yielding good stones of lead, and having the appearance of becoming more productive. The stone from the 121 winze is worth 1½ ton per fathom. The 60 stone is worth 1 ton per fathom. The 50 stone is worth 1 ton, and the 50 rise 1 ton per fathom.

* With this week's *Journal* a SUPPLEMENTAL SHEET is given, which contains: Original Correspondence: Mining in New South Wales—No. II.; Mining in South Australia; Port Phillip Gold Mining Company; Coal and Iron Masters, and their Operatives; the Barometer as an Indicator of Gas in Collieries; the Arsenic Trade; Drake Walls Mine, and Improved Stamps (S. Beale); the Origin of Metal; Mining Institute of Cornwall (R. Symonds); West Godolphin; Tankerville Mining Company; North Laxey Mine—The Wild Duck, or Sportman's Arms—Mine Adventurers' Powers—Foreign Mining and Metallurgy—Blue Tent Hydraulic Gold Mines—Registration of New Companies—List of Smelting Metal Extraction, Arsenic, and Barytes Companies in the United Kingdom, 1875—Motive-Power Engines—Almada and Tiritio Consolidated Silver Mining Company—Mining in Australasia—Monthly Summary—Australasian Mines—Foreign Mines—The Kroehnke Amalgamation Process—Testing and Working Silver Ores—Patent Matters—Meetings of St. John del Rey, Oregon, Malpas, Malabar, Roca, South Tolcarne, and South Cwmystwith Companies, &c.

ASSAYS AND ANALYSES

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NOTICE OF REMOVAL.

MESSRS. F. W. MANSELL AND CO. (SWORN STOCK AND SHARE BROKERS), have REMOVED to 43 and 43A, PALMERSTON BUILDINGS, OLD BROAD STREET, LONDON, E.C.

TO SECRETARIES AND PURSERS OF MINES.

CAPT. JOHN BURGAN, being on a VISIT to CORNWALL, to INSPECT some of the PRINCIPAL MINES, will remain in the County until the 9th January next. Anyone desirous of availing themselves of his SERVICES FOR INSPECTION may address him at PENRYN, CORNWALL; or YORK HOUSE, HIGH STREET, PECKHAM.

Address, BURGAN, make him next VISIT to GERMANY about the middle of January, and periodically visits LEAD MINES in WALES and the NORTH OF ENGLAND.

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IN PERU.—POST OFFICE, LIMA.

IN CHILI.—BRITISH CONSULATE, VALPARAISO.

Mr. H. SEWELL, M.E., F.R.G.S., will reach London, via New York, in two months time, bringing with him particulars of some rich Mining Properties. He has contracted in Chili for Copper, Silver, Gold, Cinnabar, Nickel, and Silver lead Properties.

About December any cablegram will reach him addressed Lima, Peru.

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Notices to Correspondents.

* Much inconvenience has arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be kept on receipt; it then forms an accumulating useful work of reference.

APPARATUS.—Can any correspondent give the address of the manufacturers of a composition bearing this name, and intended for preventing incrustation in steam-boilers; he would further oblige by stating whether he has tested the composition himself, and with what result?—PAX.

DURHAM OF WESTMINSTER.—The secretary of this company is requested to forward address of offices to Mining Journal.

THE SUPPLEMENTARY SHEET.—We have received occasional complaints, and of late a good many, that the Journal is delivered by country booksellers without the Supplement. Subscribers would oblige us by demanding that the paper should be handed to them complete, as every Journal is accompanied by the Supplement when it leaves our office, and the fault of omission must rest with the country bookseller or their London agent.

RECEIVED.—"J. M. H." (Oswego): Letter, but no samples—"R. D. A." (Sydney): Very welcome—"J. D. P." (San Francisco): Shall be glad to hear, as frequently as you can—"D. R." (Georgetown, Colorado): The box has arrived—"Y. Z."—"Shareholder (East Chiverston)": The letter is far too personal for publication—"Speculator" (Leith): We never give such advice—"N. W."—"F. R. A."—"T. J. B.": We quite agree with you.

MINING JOURNAL.—Any reader having duplicates of the Journal of Dec. 18, 1875, or of the following dates in 1876 will oblige by returning them at 6d. per copy, or in exchange for current numbers:—Jan. 29, Feb. 12, Feb. 19, April 1, May 20, July 1.

* LECTURES FOR PRACTICAL MINERS.—Immediately on the completion of the reports of Prof. SMYTH'S Lectures (of which only three or four remain unpublished), a series of careful reports, specially prepared for the Mining Journal, from notes taken by Mr. J. CLARK JEFFERSON, A.R.S.M., Whitworth School, and formerly Student of the Claustral Mining School, of the Lectures there delivered, will be given. The series are very complete, and will be highly valuable for the sound technical matter which they contain.

IMPORTANT NOTICE.—REDUCTION OF POSTAGE ON THE "MINING JOURNAL."—In consequence of the new POSTAL CONVENTION, which came into operation on July 1, the postage of the Mining Journal to many countries will be reduced to one fourth. Henceforth the subscription will be £1. 10s. 4d. per annum (39 frs.), postage included, for the following countries. The amount will, if desired, be collected at the subscriber's residence at the end of each year. The subscription continues until countermanded:—Austria, France, Belgium, Denmark (including Iceland and the Faroe Islands), Egypt, Germany, Gibraltar, Greece, Heligoland, Italy, Luxembourg, Netherlands, Norway, Portugal (including Madeira and the Azores), Roumania, Russia, Serbia, Sweden, Switzerland, United States, Malta, Turkey, Morocco, Tunis, and the Canary Islands. Spain 11. 19s. (50 frs.)

THE MINING JOURNAL.

Railway and Commercial Gazette.

LONDON, DECEMBER 23, 1876.

THE COAL TRADE—PRESENT AND FUTURE.

Some surprise is being expressed in many quarters at the quietness of the coal trade, and that in almost all our mining districts the collieries are working short time, the demand being scarcely equal to what it was during the summer months. Not only is this the case, but prices have come down materially, so that owners' profits, as a rule, are very moderate indeed, whilst there is but slight hopes entertained of their improving. All this may appear singular to most persons, considering that we are at the close of the year, but to those at all acquainted with the subject the present depression appears to be the natural result of that over production which was brought about by the fear of a coal famine, which began to make its appearance in the latter quarter of 1872, and prevailed during the greater part of the following year. The consequence was that a great many new collieries were commenced that are now in full working operation, so that the productive power is considerably in excess of the consumption at the present time. Had the make of pig been larger than it was during the present year matters would not have been so bad, but even with a marked improvement in the make of pig there is every reason to believe that our collieries will be able to turn out a great deal more coal than will be required. This will be evident when we come to look at the number of new collieries that have been commenced from 1872 up to the present time, and to the present and probable future of the iron trade.

In 1872 in the United Kingdom there were 3001 collieries, and in 1875 the number had increased to no less than 4445—an increase of nearly 50 per cent. in the course of three years. On the other hand, we find that between the two periods named there has been a considerable falling off in the quantity of iron made, and consequently in the consumption of fuel required for smelting. In 1872 the pig-iron produced amounted to 6,741,929 tons for the whole of the kingdom, and the coal used in its manufacture to 17,214,729 tons; but in 1875 the pig-iron produced was only 6,335,462 tons, and the coal used in making it 15,645,774 tons. Here we have a considerable decrease in the make of iron, but an increase in the production of coal equal to nearly 50 per cent. But there is another matter that should not be lost sight of, and that is the difference in the quantity of coal used in smelting the ironstone, for whilst in 1872 the average was 2 tons 11 cwt. for each ton of pig, in 1875 it was only 2 tons 9 cwt. The collieries, it may also be said, that were commenced in 1872 and 1873 were most of them on a large scale, some being able to bring to bank from 1000 to 1500 tons a day, and in districts where the seams are of considerable thickness and of good quality. This will be seen from the following list of the collieries in the various Inspectors' districts in 1872 and 1875:—

	1872.	1875.
Northumberland, North Durham, and Cumberland ..	210	211
South Durham ..	147	211
Yorkshire ..	431	520
Derbyshire ..	129	255
Nottinghamshire ..	58	167
Cheshire, North Staffordshire, and Shropshire ..	212	299
Staffordshire and Worcestershire ..	319	574
Lancashire, Manchester district ..	3	373
ditto Wigan and North Wales ..	172	373
Ireland ..	49	43
Monmouthshire ..	197	151
Somerset, Gloucester, &c. ..	18	253
Glamorgan and Brecknock ..	237	308
Carmarthen and Pembroke ..	47	54
Scotland, West ..	217	275
ditto East ..	252	373
Total ..	3001	4445

It will be seen that a considerable addition has been made to the collieries in those districts nearest to the metropolis, and in those where the coal is known to be of the best description, realising the most money in the various markets. In South Staffordshire the 10 yard coal has been reached, whilst in the Midland coal field, which embraces Nottingham, Derbyshire, and the West Riding of Yorkshire, the 9 feet coal has been tapped at several places, as well as the well-known Silkestones. But there is another point in connection with the coal trade of the future, and that is the fact that at the present time a great many new collieries are now in course of sinking that during the ensuing year will be able to add some millions of tons to the present productive power of the country. In South Yorkshire alone it is estimated that the new collieries recently opened out, and those in course of sinking, will be able to give an addition to the present output of something like 3,000,000 tons a year. In most other parts of the country something similar is going on, so that coal promises to be not only most abundant but very low in price—too low, one would think to be remunerative to colliery owners. Small collieries and those where the seams being worked are thin will have very little, one would think, in the race that must take place between coalowners in different districts for the trade. Nearly all the collieries now being opened out are very large ones, and for many years past the little ones have been unable to compete with the large concerns that have grown around them. In the Leeds and some other localities it may be said that thin seams are still worked, owing to the coal being well adapted for

smelting the ironstone that is got in connection with it. No such increase like that which has taken place during the last three years is to be found in the annals of the coal trade of the kingdom. From 1855 to 1872 the number of collieries had only advanced from 2613 to 3001, or 15 per cent. in 17 years, whilst in three years there was an increase of nearly 50 per cent. But in many districts 20 years ago the pits were comparatively small as to what they are now, which will be seen from the average output of the various collieries throughout the kingdom for 1855 and 1875:—

	1855.	1875.
Northumberland and North Durham ..	56,525	74,118
North Durham ..	35,184	109,822
Cumberland and Westmoreland ..	23,285	31,460
Yorkshire ..	25,40	29,885
Lancashire ..	23,409	29,041
Cheshire ..	13,192	17,809
Nottinghamshire ..	15,411	25,505
Derbyshire ..	38,636	49,144
Warwickshire ..	14,618	24,560
Leicestershire ..	19,739	18,003
Staffordshire and Worcestershire ..	16,354	15,830
Shropshire ..	34,599	28,000
Gloucester and Somerset ..	17,307	19,672
South Wales and Monmouth ..	7,511	2,414
North Wales ..	18,175	34,190
Ireland ..	30,909	30,909
Scotland, East ..	30,909	30,909
ditto West ..	30,909	30,909

From the facts we have given it will be evident that we shall have a superabundance of coal for a long time to come, and that unless there is a very great change, our miners, more especially in the summer, are likely to be little more than half employed. But as cheap coal means cheap iron, it is quite probable, as we have before stated, that there will be a considerable improvement in most branches of the iron trade, but certainly not to the extent of increasing the price of coal, which is likely to come down as low as it was in 1870.

LEGISLATIVE CONCESSIONS, AND TRADES UNIONS.

We had hoped that the recent more rigid enforcement of the law with respect to rattening and picketing, and the spread of education amongst the working classes, would have prevented a repetition of those trade outrages which are a disgrace to our artisans and mechanics, and which arouse universal indignation throughout the whole country. The very able and popular lecturer, HENRY VINCENT, found one of his best and most powerful orations upon the thesis that "individual liberty is the basis of all national freedom;" and although the lecturer only contends that this individual liberty is the key-stone of our religious and political freedom, he may well carry his argument into the every day life and work of our mining and industrial classes, and argue with equal force that individual liberty is the very foundation of the prosperity of our working classes, and that upon which the progress of the nation, in a manufacturing point of view, materially depends. We may lay it down as a broad, fundamental axiom that every man in the United Kingdom has the most perfect right to work for whatever master will employ him, and for whatever wages he can obtain, high or low, without interference from any man or body of men, and until this individual freedom is a reality so long will all laws and regulations affecting labour be wrong in principle, and the relationship between employer and employed based upon insecure and unsafe foundations.

We have no hesitation in saying that the cases of picketing and rattening which have lately come before the public are a disgrace not only to the actual perpetrators, but to those societies or Unions at whose instigation they were committed. They clearly show that the "BROADHEAD" spirit is as rampant as ever, and ever ready to manifest itself upon the first favourable opportunity. A few weeks since Mr. Justice LUSH had before him two cases under the Conspiracy and Protection of Property Act, in which two men, and one a secretary to a Trades Union, were charged with picketing and intimidation. The country, and especially the labouring classes, should feel indebted to his lordship for the very lucid explanation he gave of the somewhat difficult provisions of the Act of Parliament applying to Trades Unions, and we had hoped that this explanation, and the punishment which followed the breaches of the Act would have had a salutary effect and forever banished similar trade outrages. The two men were charged with picketing and intimidation—in other words, not simply watching but threatening personal violence if the prosecutors persisted in working whilst the members of the Union were on strike. Mr. Justice LUSH laid it down that "simple picketing, with the object of obtaining or communicating facts, or even appealing to the sympathies or the self-interest of the men, continuing during a strike, was clearly legalised by the last Act of the Legislature, but to watch or beset a house with the view of preventing or intimidating a person from doing any act which he has a right to do is coercion and intimidation within the scope and meaning of the Criminal Act, subjecting the person so guilty to a penalty of 20s., or a twelve-month's imprisonment." The Unionists in the case to which we now refer had not only been guilty of picketing, but had accompanied it with threats of maiming and killing the non-Unionists if they continued at work, and consequently the prisoners deserved the punishment awarded them—the secretary to the Trades Union to two months' imprisonment, and the other to one month.

The Legislature has for years past been anxious to afford the working classes every facility for the protection of their just rights, and have striven measures in favour of working men as against the interests of manufacturers. Trades Unions have been legalised, and many restrictions which once existed for regulating the rate of wages have been swept off the Statute Book. The powerful organizations of working men have succeeded in enforcing large and rapid strides in their favour, and it was thought that the last legislative enactment would have satisfied the most zealous Unionists; in fact, the Act of last year was generally hailed by the Unionists as a satisfactory settlement of their demands. It gave them most extensive powers for the management of their Unions, but it held as inviolable and sacred the individual liberty of action as the great palladium of the rights of the working man, and the foundation of our great mining and manufacturing industries.

With these liberal concessions made in favour of the working classes, and the legislative protection thrown around their Trades Unions, it is pitiable to see the old spirit of tyranny and oppression cropping up every now and then. The dastardly outrage of "rattening" is again rife in some of the large manufacturing centres, and Sheffield bids fair to uphold its unenviable notoriety of being the head quarters of this despotism. Stealing or destroying machine bands is after all a poor mean despotic way in which to "punish" a man for refusing to bow down to the behests of the Trades Union, or claiming to work for the support of his wife and family for the wages which he can obtain, and demanding that individual liberty which should be the birthright of all. We write more in the interests of the working classes in this respect than of the masters. We wish to show the former that the policy pursued by some leaders of Unions is inimical to their best interests, and opposed to their true welfare. The suicidal "strikes" of the colliers and ironworkers in South Wales, in Stafford, and other great mining districts, which divested millions of capital from their legitimate channels, and from which the districts are still suffering, would never have taken place but for the persistent agitation of paid Union leaders. These Unions still, not only palliate but apparently endorse rattening and other trade outrages, but such conduct should be frowned down by all true protectors of the best interests of the working classes. Trades Unions have legitimate functions to perform, and properly managed may be made a lever for the accomplishment of much good; but individual liberty of action to work wherever labour can be obtained, and for whatever the individual pleases, must be maintained and upheld at any and every cost. This is what the country at large demands, and what the interests of our manufacturing and mining interests have long since contended for, and everything which tends to interfere therewith is condemned by every principle of social and political economy. Unionists should learn that, whilst their persistent importunities and demands have wronged from the Legislature many measures whose effects may be questioned as regards the general welfare of the country,

there are bounds over which they dare not step with impunity; that individual liberty of action to accept any rate of wages is the inalienable right of one and all, and must be protected at any hazard.

THE IRON AND COAL TRADES IN FRANCE.—The official statistics relating to the French iron and coal trades for the first half of the present year have been published. The production of stone coal, anthracite, and lignite amounted to 4,150,000 tons, 3,800,000 tons being stone coal. These figures show a decrease of about 25,000 tons against the first half of 1875. The production of iron was also less than during the preceding year to the extent of about 3917 tons. In the first half of 1875 32,800 tons of railway metals were turned out of the French works; during the first half of the present year only 19,350 tons were delivered. The production of steel during the same portion of this year was 7000 tons less than last year. On the other hand armour-plates and cast-steel show a considerable increase. Generally speaking the metallurgical trades have suffered in France, as elsewhere, and manufacturers complain very much of the stagnation of business. The returns for the second part of the year will apparently be still worse, complaints of depression coming especially from the departments of Haute-Marne, Meurthe-et-Moselle, and the Loire.

THE MINES REGULATION ACT.—At the Willenhall Police Court, on Monday, James Base, manager of the West Cannock Colliery Company (Limited), Hednesford, was charged with a breach of the Mines Regulation Act by not providing proper means for securing the roof of a pit. On Aug. 29 a man named Evans was killed by a fall of the roof for want of timber props. The defendant, whose colliery is one of the largest in the Cannock Chase district, and who has about 1200 miners and 25 assistants under him, was fined 5s. Notice of appeal was given on an objection raised to the justification of Mr. R. D. Gough, the presiding magistrate, he being a member of a limited liability company, and the Act of Parliament, it was contended, prohibits a magistrate acting under such circumstances. At the County Police Court at Bolton, on Monday, Mr. James Roscoe, colliery proprietor, Little Hulton, was charged with a breach of the 10th rule of the Mines Regulation Act by neglecting to provide a sufficient number of places of refuge on an inclined plane worked by an engine. On Dec. 5 a man named Thomas Wild was working in the defendant's pit, when a wagon came down the plane, which was only 4 ft. wide, and before Wild could get out of the way the truck overtook him and he was killed. According to the Act, man-holes for places of refuge should be provided at intervals of not less than 20 yards apart, but on the plane on which this accident occurred there was a distance of more than 40 yards without a man-hole.—Defendant was fined 2s. and costs. Henry Worthington, manager of the mine, was also fined 2s. and costs.

PHOTOGRAPHY UNDERGROUND.—Mr. V. L. Jackson, of Oldham, writes:—I believe that Jackson Brothers, of Oldham, were the first persons who ever attempted to take views of the workings of a coal mine through the aid of magnesium wire. In May, 1875, my father and I, as the request of a member of the Manchester Geological Society, descended the Bradford Colliery, Manchester, for the purpose of testing the capabilities of the magnesium wire (which had then been but lately invented), and obtaining views of the workings. They were accompanied by Mr. Livesey, of the Geological Society and others. Four negatives were taken, and copies from the same were exhibited before the Manchester Geological Society soon after the experiment. I may say that the mine, the scene of experiment, was only 4 ft. high.

COAL AND IRON IN THE UNITED STATES.—The directors of the Old Colony Railroad Company report that upwards of 50 miles of track are now laid with steel rails; some of these rails have been in use eight or nine years, but they show no perceptible signs of wear, and the directors, believing that steel rails have reached their lowest point in respect of price, and that the present is a good time to purchase, have contracted for the purchase of about 4000 tons of such rails, to be delivered during the winter. The production of anthracite coal in Pennsylvania to Nov. 25 this year amounted to 17,390,501 tons, against 19,172,092 tons in the corresponding period of 1875, showing a decrease of 1,811,591 tons this year. The production of bituminous coal in Pennsylvania to Nov. 25 this year amounted to 3,318,323 tons, against 3,621,030 tons in the corresponding period of 1875, showing a decrease of 272,497 tons this year. The Straight Shoot Railroad of Virginia is expected to provide a new outlet for the West Virginia coal fields; it will also traverse an iron belt which is said to be the richest and most extensive east of the State of Missouri. The Atlantic, Mississippi, and Ohio Railroad is now residing 500 tons of steel rails, to be laid on its Virginia and Tennessee division.

REPORT FROM CORNWALL.

Dec. 21.—There is rarely much doing in mining matters at Christmascide, and 1876 is certainly no exception to the rule. But for one event there would absolutely be nothing of importance to be chronicled this week. The tin standard remains where it was. The heavy and incessant rains have told somewhat upon the water charges of the mines, and the county audit is discharging an enormous quantity, while at one mine—St. Aubyn—a choke in its adit has laid the lower levels and water.

The one event is the inaugural dinner of the Mining Institute, which was held at Camborne, and at which the new society was very successfully launched. Dr. Foster presided. The attendance was very large; the best feeling was expressed on all sides; a cordial desire to work harmoniously with the county scientific societies, and especially with the Miners' Association, was manifested, and a good many practical and suggestive speeches made. The only thing to be regretted was that there were not more mine agents present. However, such well-known agents as Capt. Teague, Josiah Thomas, R. Pryor, Teague, jun., Harris, and Sathey were there, and took part in the proceedings, and there is ample room for growth. Several valuable suggestions were made during the course of the evening. Capt. Teague, in speaking to the toast of "The Mines west of Truro," expressed the great pleasure he felt at the establishment of the Institute, and remarked that while some had said it would clash with the Miners' Association, he did not at all believe that. On the contrary, there was room enough and quite work enough for both, and united, they would do a very great deal for mining. As there were Chambers of Agriculture and of Commerce, exchanges and institutes for various branches of trade and manufacture, so there ought to be an institute for mining. It had been said that mining men would grudge half a day a month to attend the meetings of the Institute, but he did not believe that when they reflected what the advantage of their interchange would be. They could all inform each other of what they met and interchanged ideas, but if they kept aloof and isolated what progress could be expected. He thought as a practical suggestion that the Institute would be of great value in, through its means, they could have current statistics with regard to their staple commodity—monthly returns of the production, imports, and deliveries of tin. (Applause.) Alone they were weak—united, he trusted they would show that they possessed considerable power. "The Mines east of Truro," were spoken for by Capt. R. Pryor, who gave a succinct and graphic description of the great works at New Consols, as an illustration of the enormous value of the science of chemistry to the miner, and expressed his conviction that the system of chemical mining there introduced would do wonders for the county, for it had been proved at New Consols to be a thorough success. Dr. Foster, by the way, in proposing the toast, expressed a hope that one of the excursions of the Institute would be to New Consols. Then, speaking for the "Engineers," Mr. W. Husham, of Hayle, briefly reviewed the enormous improvements which the past century had made in Cornish mine machinery. It was only about a century since that the first fire pumping-engine was set up at Chacewater; 50 years ago Watt introduced his engines; 70 years since Trevithick invented the boilers, without which they could not have used high-pressure steam; within 50 years Woolf made his improvement, and it was in their own time that skips, wire-rope,

and the man-engine had been introduced. At present what had to be looked to was not so much the introduction of novelties as the perfecting what they already had. Thirty or forty years ago the Cornish pumping-engine reached a pitch of excellence which had never been surpassed since then; and now many engines had been allowed to get into a state in which they ought not to be. If all this machinery were improved, as it should be, there would be a saving of 25 per cent. in the coal burnt. Their winding-engines, probably, would never be brought to the same state of perfection in the colliery engines, with their most exact and regular work, but there might be improvements here by working with greater expansion of steam and higher pressure in the boilers. Mr. J. H. Collins and Mr. B. Kitto promised co-operation on behalf of the Miners' Association and kindred societies, the former pointing out the importance of a knowledge of mineralogy, while the latter showed that a very large amount of chemical knowledge had been diffused by the Miners' Association. Capt. Josiah Thomas very pertinently indicated the difference between the way in which the Institute was welcomed by the mine agents and that in which they received the Miners' Association. The reason why mine agents generally had held aloof from the Miners' Association was that the scientific men who had started the Association did not exactly understand the mine agents, and did not know what a sensitive class of people they had to deal with, and perhaps did not act in the wisest and most judicious manner. The chief topic of discussion when the Association was formed was the ignorance and want of intelligence of the Cornish mine agents. And what made it worse was that doctors, lawyers, and clergymen joined with the scientific men. Now, if the mine agents had formed a society, and denounced in like manner the lawyers, parsons, doctors, and scientists, they would have been thought very impudent and presumptuous. However, the Miners' Association was doing good work now. The Institute had been started by agents themselves, and he hoped it would be successful.

Now the Institute has been fairly started it will soon get to work, and the first paper announced is by Dr. Foster and Mr. Pike, "On Suggestions for the Formation of a Miners' Permanent Relief Society." We hope the monthly meeting will be well attended. No society could start under more favourable auspices, and assuredly Capt. Teague will have good reason to be proud of the result of his exertions thus far. There could not be a better President than Dr. Foster, a better secretary than Mr. Provis, and the vice-president and council are all that could be desired. It remains to be seen what the mining folk of Cornwall will do with the immense power for good thus put into their hands. They need no longer be a rope of sand, but may act with some of that corporate authority, if they choose, that attached to the doings of their ancestors in the days of the ancient Stannary parliaments, which to a certain extent did very much the kind of work—apart from legislation—that the Institute may and should do.

Appropos of the New Consols, we are glad to hear a very excellent account of the great success which has attended the "selection" made of working now adopted there. Instead of all the orestuff being stamped and treated as raised it is carefully selected, so that there is no waste of power in the subsequent processes. The present system of selection has been in operation only a few weeks, and the results are so satisfactory that they represent an improved return to the mine of receipts as against outlay of several thousands a-year.

It has no doubt been observed that Mr. Robert Rawlinson, as engineer, and Dr. Angus Smith, as chemist, have been appointed by the Local Government Board Inspectors under the Rivers Pollution Act. The power which the statute confers upon these officers largely concerns the manufacturing and mining industries. They have power to summon witnesses before them, call for the production of papers, accounts, &c. The neglect to obey a summons constitutes a misdemeanour. A certificate signed by the Inspectors to the effect that matters conveyed into any stream have been rendered harmless by the best or only practicable means under the circumstances "shall in all courts and in all proceedings under this Act be conclusive evidence of the fact." The duration of the certificate shall be noted thereon, and all expenses incurred in obtaining it "shall be paid by the applicant for the same."

THE MINERALOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND.

A meeting of the Mineralogical Society was held on Monday, at the Laboratory, Cambridge, Dr. Foster presiding, when several papers were read. Dr. Foster called attention to several new mineral localities in Cornwall and Devon, including apatite at St. Agnes, and scheelite at St. Just. Mr. J. H. Collins, the general secretary, read a paper on the chlorophyll which he had classed under existing names, according to the relative proportions of alumina and peroxide of iron—exhibiting an example of graminite from Devon, which is new to that county. Mr. B. Kitto, the local secretary, read a paper on a curious form of tin ore from Wheal Ury, which cannot be extracted by vanning. Other papers and abstracts, but not of special local interest, were likewise read.

REPORT FROM THE NORTH OF ENGLAND.

Dec. 21.—If there has not been any improvement in the Iron Trade of the North of England during the last few days it can at any rate be predicted that the *status quo* has been maintained. Buyers are not eager to conclude purchases until they see what the turn of the year will bring along with it, and this notwithstanding the current and very generally expressed belief that the quarterly meeting of the trade to be held in Middlesborough next month will bring about a much more favourable tone. Meanwhile, quotations remain without material change. No. 1 is 49s. to 49s. 6d., and No. 3 46s. per ton, other qualities of pig-iron being quoted at corresponding rates. Both forge and foundry iron meet with a fair sale, but it was stated on Change this week that forge iron is getting more scarce.

The Durham Coal Trade is not in an improving condition. Very few pits are working full time, a number of them falling to put in more than six or seven days per fortnight, and the position of affairs has been rendered still more distressing by the fact that on Saturday last 600 hands employed at Shotton Colliery got notice to terminate their engagements, owing, it is presumed, to the intention of the owners to lay off the pits for a time. The number of miners now idle, or nearly so, in the county of Durham is considerable, and this new step will cause the distress to be greatly intensified, although the Durham Miners' Association, which has a large reserve at its back, has hitherto done a great deal to prevent the unemployed from coming on to the rates.

The annual meeting of the Durham Coke Drawers and Labourers Association was held in Durham on Saturday, when a very gratifying report was presented as to the position and prospects of the Association. An offshoot from the Durham Miners' Association—the Coke Drawers' Union—was established about two years ago, with a membership of little more than 1000, and, notwithstanding the adverse condition of trade, it can now reckon on a membership of nearly 4000, while it represents at least 2000 more. The executive of the Association are men of such exceptional prudence and intelligence that they have more than once been warmly complimented by the coalowners of the county for the ability and wisdom with which they have conducted their business, and especially in cases of wages disputes referred to arbitration.

The Cleveland Institute of Engineers met on Monday evening, when the paper read at the previous meeting by Mr. Edgar Gilkes, on the "Tay Bridge," was fully discussed, and a paper was read by Mr. Head on "Certain Defects in Quick Running Steam Engines." It is understood that the Tay Bridge will be opened in the course of next year, the last of the piers having now been got into position. The opening of the bridge will be highly beneficial to the traders in Dundee, and other towns of importance on the Forfar side of the Tay, by bringing them into direct and immediate connection with the Fife coal field.

There is a proposal now under the consideration of both the coalowners and miners of the county of Durham to substitute for the ordinary machinery of arbitration a sliding scale that will adjust wages to the selling price of coal without any difficulty or danger of rupture. It has been found that in the Durham coal trade, at any

rate, arbitration proper is a very costly expedient, and the miners are beginning to tire of expense that it has so far involved. That expense is mainly incurred in consequence of the manner in which the miners get up their coal, and although no expense incurred in such a matter can be considered too great when viewed as Mr. Tom Hughes once put it, as a premium against strikes and lock-outs, yet it is believed that the same purpose would be answered at much less cost by adopting a self-acting sliding scale similar to that adopted some years ago in the North of England iron trade, or like that now applied to the regulation of miners' wages in South Wales. A definite decision will be arrived at in a few days.

Rail manufacturers in the North of England continue to feel very severely the pinch of the times, very few of them having anything like a sufficiency of work on hand, while nearly a dozen large establishments are still absolutely idle. Some firms have recently been quoting for rails as low as 5s. 15s. per ton, but even at this figure very few orders come to Cleveland, and if all the specifications given out within the last three months were put into one they would hardly suffice to keep one of our largest rail mills in full operation for more than a few weeks. Orders, in fact, only take the form of dribbles—so limited in extent as hardly to make it worth the while of some of the principal firms to put in a tender at all.

Ironfounders generally are doing a very good business, and the same remark applies to marine engine builders, whose books have been put into a much more satisfactory condition by the greater activity that has recently prevailed in the shipbuilding trade of the three northern rivers—the Tyne, Wear, and Tees.

At most of the ports in the North the shipping business is rather dull, and freights are quieter than they were. This is more particularly true of the Baltic trade. Coasting freights are also dull, and it is not expected that business will much improve until the turn of the season.

It is understood that the Consett Company are taking steps to engage in the manufacture of steel. This company have already obtained very large royalties of ironstone at Bilbao, in Spain, from which they are now drawing supplies of ore conjointly with Herr Krupp, of Essen, and the Dowlais Iron Company, in North Wales.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Dec. 21.—The business doing at the mills and forges is but small this week, and to the orders before in hand very little addition has resulted from the transactions on Change in Birmingham to-day, or from those in Wolverhampton yesterday. Prices generally show a tendency to weakness, and sheets are decidedly easier. Merchant sheets may be had at 8s. as a minimum, and Messrs. Hatton and Sons have just reduced their make 10s. per ton. The drop leaves their best and No. 2 brands at 17s. 10s., and it is due to the keenness of competition which they are experiencing from a former partner, Mr. Stephen Thompson, who is now the proprietor of the Manor Works, Edginghall. What Messrs. Hatton have done it is only reasonable to suppose that every best sheet makers will have to do. Pigs are selling only quietly, former extensive sales having pretty much satisfied consumers' requirements. Some purchases have been considerable, comprising deliveries which will extend, several of them, into March, and a few even into July. The sales have mostly been made at prices scarcely so strong as those which have recently been quoted. Coal is almost a drug upon the market. So large has been the output, and so considerable in best kinds the competition from other districts, and the slackness of business at the furnaces, that all ironmaking coal is kept both plentiful and cheap, and there is no immediate prospect of any decided change in this condition of things.

Local shares in coal and iron and such like companies are not strengthening, nor is there much being done in them. Cannock and Huntington (4s. paid) are now being offered at 1s. dis., a price at which Hamstead, and Cannock, and Wimblebury, also 10s. paid up, likewise stand, but without business. Holders of the Darlaston Steel and Iron Company's shares, 10s. paid up, are offering at 2s. Staffordshire Wheel and Axle shares, 3s. paid, are selling at 1s. 6d.; Tankerville Mine, 6s. paid up, are going at 9s.; Birmingham Wagon shares, 10s. paid, are selling at 12s.; and Oldbury Railway Carriage, 5s. paid, are changing hands at 10s.

The Wallsall Wood Colliery Company held their first meeting on Monday. The report spoke of the great difficulties arising out of the water which had come upon the sinkers, who, however, had been enabled to carry their No. 2 shaft to a depth of 284 yards, No. 1 pit standing at the depth at which it was left in December last. The difficulties are being skillfully combated, cast-iron tubing and other means being resorted to for making a good 15 ft. shaft, and a Hoffman's kiln is about to be put up. The property is likely to be connected by both the Midland and the North Worcester-hirelines, and embraces an area of some 600 acres, throughout the whole of which the directors have no doubt the coal of the district occurs.

The long-continued rain is having an effect upon the surface of colliery localities, where the mines have been got tolerably near the surface, and there have, therefore, been several instances of the subsidence of the surface, locally termed crownings in. One of these has happened on the main road from Kingswinford and Lower Gornal. It occurred at night, but no one was injured by it. Another possesses a more serious aspect, as buildings were upon the spot. It happened at Bedworth, in the Warwickshire coal field. Several dwelling-houses stood upon land from beneath which the coal had been got. The land sank in, carrying the houses with it. In the dip thus created the water has been accumulating, and the lower rooms are now quite inundated, and the tenants fearing worse things have quitted the houses.

The operative representatives who are to serve on the South Staffordshire Wages Board have been elected. A meeting of ironworks' representatives was held for that purpose at Wednesbury, on Monday, when 12 men were appointed to represent the varied interests of the mill and forge, men practically connected with the several departments being chosen in the proportion justified by the number of operatives in each department. Mr. Capper was re-appointed as secretary, and Mr. Townsend as auditor. At the same meeting an address, that had been prepared by the secretary for presentation to the council and members of the association, with a view to strengthening the Union, and extending its influence, was considered, approved, and ordered to be forwarded to the council.

The master chain-makers have given their men notice of another reduction of wages, equal to 2s. per cwt. The men, having recently gone in after a fruitless strike against a drop in small chains, declare that they cannot submit to this second reduction.

Unusual slackness of demand still prevails throughout the Iron Trade of North Staffordshire. The supply of pig iron is now more than equal to the demand, and the prices, though favourable to buyers, do not draw out orders; as a consequence ironstone is in small request. A few new orders have been received in the finished department for boiler and ship plates for immediate execution, but with this exception trade is unaltered.

An extraordinary objection was raised at the Willenhall Police Court, on Monday, by Mr. Glover on behalf of Mr. James Pease, manager of the West Cannock Colliery, who was prosecuted for breach of the 16th general rule, whereby a fall of roof had occurred, and killed a man. Mr. Glover's objection was that as the Act forbids the owner, agent, or manager of a colliery, or the father, son, or brother of either, to act as a magistrate in a colliery case, therefore the holder of a share in a colliery was incompetent to hear the case. On this ground the Rev. G. H. Fisher was objected to as a shareholder in a colliery company, and the hearing was adjourned for three weeks in consequence. The same difficulty arose on Monday, as one of two magistrates, in no way connected with any colliery, who had promised to be present, was unable to attend. Mr. Nathan, maintaining the competency of Mr. Gough to hear the case, said the objection was very foolish—in fact, quite ridiculous. Mr. Glover had contended that an owner embraced "the body corporate," and that a shareholder in a colliery was part of the body corporate. The body corporate was not made up of parts, but was one whole or person. Neither the director nor the shareholders were the body corporate. Such a body was invisible, and did not act in parts, but by its corporate seal. The owner of the mine was the Hamstead Colliery Com-

pany (Limited); the owner was not on the bench. The body corporate of a colliery might, if necessary, in any case be summoned, and would appear in proper manner in the person of the secretary of the company, not in the person of anyone else. The magistrates decided to hear the case, and authorised an appeal. It was not disputed that the unsound roof was known several days before the accident, nor that James Pease was the manager, but Mr. Glover contended on his behalf that he was not the person who should have been summoned. The responsibility rested either upon the stibmen or the fireman of No. 24 face of work in No. 1 deep pit, who were competent persons. If the prosecution had wished to make the manager responsible, they should have proceeded under the 64th section of the statute. His client had taken all reasonable and even possible means to prevent such offences being committed, and he contended that if he could show he had done this, then all responsibility was removed from Mr. Pease. There was a uniform system of timbering adopted throughout the colliery, which was that the trees should be 6 ft. apart in ranks, and 4 ft. 6 in. between the ranks. No amount of timbering would have prevented the fall, and no amount of foresight could have detected what part of the roof near the fault would be most likely to fall. No fewer than 1200 men were employed in the West Cannock Colliery, and 25 competent persons were appointed to superintend the working of the mine. Mr. Pease had exercised a daily supervision over the mine. The system of propping, too, had been thoroughly explained to the fireman. The magistrates found that Mr. James Pease, as manager of the West Cannock Colliery, had a very grave responsibility resting upon him, and that he had a very great deal to do. Still, that could not relieve him of the responsibility which undoubtedly was placed upon him of seeing that the whole of the work in that extensive colliery was properly carried out. One of the defendant's own witnesses had said that Mr. Pease had been told of the existence of the fault three days previous to the accident, and that being so the defendant should have taken special precautions to have the roof properly propped. They had come to the decision that the defendant was liable, and their decision was strengthened by the fact that the Secretary of State had decided that even though the manager of a colliery should appoint competent persons to do the work, yet if there was any neglect the responsibility was not removed from the manager. They should impose a fine of 5s. and costs. It was arranged that Mr. Glover should state in writing the objection he intended to take, and that upon this an appeal would be granted.

At the Bilston Police Court, on Tuesday, Mr. J. P. Baker, the Government Inspector of Mines for the district, prosecuted in nine cases for offences against the Coal Mines Regulation Act. Mr. John Shorthouse, the certified manager of the Cop Hall Colliery, was fined 10s. and costs for neglect of the first special rule under the Act, 2s. and costs for neglect of the fifth rule, and 20s. and costs for a breach of the 20th section of the Act. Mr. William Hickman, owner and manager of the Swan Colliery, West Bromwich, was fined 5s. and costs for a breach of the first general rule, and 1s. and costs for a violation of the fifth general rule under the Act. Mr. Daniel White, owner of the Victoria Colliery, near Tipton, was fined for three distinct breaches of the Act, the penalty assigned being 2s. and costs for the two first, and 5s. and costs for the last, of these offences. Thomas Lewis, the engineer at Lunts Colliery, was fined 10s. and costs, for misrepresenting the age of his son, and thus securing his engagement to take charge of the winding-engine at the colliery.

TRADE OF THE TYNE AND WEAR.

Dec. 21.—The Coal Trade has been dull during the past week, and to-day a dreadful gale is again raging in the North Sea, which will put an end to the sailing of vessels so long as it continues. The shipments of gas coal have again been heavy, but the demand for house coal is very moderate owing to the long continuance of mild weather for the season. Manufacturing coal has improved a little, the increased demand for coke having this tendency. Many contracts for coke have been entered into for delivery next year at increased rates on the late quotations. The steam coal trade, of course, will remain dull until the Christmas holidays are over, and some progress is made in the new system of working; this will require some little time, but it will no doubt, in spite of many difficulties, be successfully carried out, much to the advantage of all parties. Old or worn out and unprofitable collieries are still being closed for the present, but should the trade revive next year, which is fully expected, some of the best of those works will be kept open ready for re-starting. The iron shipbuilding trade in these rivers is now considered good, and a gradual healthy progress is evident in most branches of the iron trade. The engineering trades in many branches are dull, but there is a very good demand for marine engines. Foundries are generally dull, but that is the usual state of that trade at this season.

It is likely that the Shotton Colliery will be stopped, as the men and lads, 600 in number, received the usual notice on Saturday last. This is an old colliery, lying on the west of the celebrated Haswell Colliery, and belonging to the same owners; it has always been inferior to the Haswell Works, the ground having been much disturbed by faults, and the seam being much thinner than at Haswell. At the latter place the Hutton seam was found in great perfection and of considerable thickness, about 5 ft. thick, and it is the coal of most excellent quality; it has, indeed, been one of the best coal tracts worked in the county of Durham hitherto. The great Ryhope Colliery is situated north-east from Haswell, and here the seams have proved most prolific also; 2500 tons per day have been raised for some time from two pits 300 fms in depth. The new Silksworth Colliery is situated two miles north-west of Ryhope, and here the main seams have been found as far as the explorations have gone of good section and quality. About 1100 tons per day is now raised here from one shaft, the depth being the same as at Ryhope.

In Cumberland the Iron Trade is very firm and prices of both iron and ore are advancing. The demand for coal is also improving and prices are firm at slightly improved rates. Glass making has been a very important trade in this district for upwards of a century, and especially on the Wear, where the art of glass making was introduced by skillful men brought over from France. Plate-glass, bottle and flint glass, &c., is largely produced. Of late years the Belgians have been formidable rivals, and have been able to sell large quantities of glass on the Tyne and Wear, but this has been mainly sheet glass of the plainest kind. However, those rivals on the Continent have compelled the glass makers here to adopt many scientific improvements as possible; and at Sunderland important changes have been made late year at great cost, one firm having expended 3000l. over these new plans, and it is not yet certain what the advantages may be. The Wearmouth Crown Glass Co., Southwick, have erected and commenced a Siemens gas furnace for manufacturing glass. This furnace, as is well known, has long been in use for metallurgical purposes, but the Southwick company are the first to introduce it here for glass making. The advantages claimed are that a saving of fuel equal to 40 per cent. will be effected, 30 per cent. increase of work done in a furnace of given dimensions, and many other advantages. A number of gentlemen attended on Saturday to see a trial of this furnace, and the result was considered to be highly satisfactory. It is to be hoped that these furnaces will prove to be profitable, and may lead to their general adoption, as another great advantage will result—the entire absence of smoke. At present the law exempts glasshouses from penalties for producing smoke, but must if not all other manufacturers must consume the smoke, or render themselves liable to penalties. On the Tyne, at Newcast and Gateshead, the inspectors have lately been very active in bringing offenders up, and the result has been a marked improvement. We have now several patents quite effective in preventing smoke from ordinary boiler fires, and those who do not adopt them deserve to be fined, but many annealing furnaces, &c., have been allowed to proceed, although the smoke they cause is enormous. No doubt the Siemens principle would prevent all this.

A portion of the miners of Northumberland intend to hold a mass meeting at Horton on Christmas Day. It is not likely that many will attend, and the attempt will no doubt prove a failure.

The award in the case of the Durham Colliery engineers has been given by the umpire, Mr. J. Dods, M.P., of Stockton. He decides that a reduction of 6½ per cent. be made in the wages of all classes

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LONDON METAL EXCHANGE.

IN CONSEQUENCE OF THE CLOSING OF THE LOMBARD EXCHANGE, on the 31st December, the premises having been let to a Bank, OTHER PREMISES have been TAKEN at No. 4, LOMBARD COURT, GRACECHURCH STREET, for continuing the meetings hitherto held at the Lombard.

For terms and particulars, apply to Mr. E. HARRADINE, Secretary, No. 4, Lombard-court, E.C.

FRENCH PHOSPHATE CONCESSIONS.—ANYONE requiring INFORMATION on the above in the DEPARTMENTS of the LOT, TARN-ET-GARONNE, may obtain it by applying to "Miner," at Brown's Advertising Office, Little George-street, London, S.W.

TO MINING AND OTHER COMPANIES.

A GENTLEMAN is open to an APPOINTMENT as MANAGER, SECRETARY, or ACCOUNTANT, at home or abroad. Has had thirteen years' experience on railways and mining works in this country and Canada. Address, "A. Z.", 432, Wandsworth road, S.W.

LEAD—SHEET, WHITE, AND RED.

WANTED, by a Firm in Glasgow, having a first-class connection among large consumers, an AGENCY for SHEET, WHITE, and RED LEAD. Apply to ARCHIBALD FERGUSON, Writer, West George-street, Glasgow.

TO MINING ENGINEERS.

WANTED, an ACTIVE CO-OPERATOR, with £5000, to be secured by Mortgage on COAL PROPERTY of immense value. Interest 6 per cent.; bonus £5000; and good situation abroad. Address, V. ELLIS, Post Office, Geneva.

WANTED, a RE-ENGAGEMENT as MANAGER by a Practical Mine Agent, of ten years home and fifteen years Foreign and Colonial experience in GOLD, SILVER, TIN, LEAD, COPPER, IRON, and PHOSPHATES of LIME. Inspections of Mining Properties undertaken, and Estimates carefully made. A position foreign preferred. Speaks Spanish. First-class references. Address, in first instance, "Metal," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

WANTED, an ENGAGEMENT as MANAGER of a COLLIERY, either at home or in any of the colonies. Is certificated, and can produce testimonials as to character and ability. Address, in first instance, "M.," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

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WANTED.—The Advertiser, a PRACTICAL MINER of eighteen years experience at home and abroad, will shortly be disengaged, and desires a SITUATION as MINE AGENT, which position he has filled for the past seven years. Is a thoroughly practical Miner, Dialler, Mapper, Assayer, and Analyser, and understands Mining Correspondence and Accounts. Unexceptionable references. Address, in first instance, "Captain," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

WANTED, SHARES IN ALMADA, COLORADO TERRIBLE, FLAGSTAFF, JAVALI (preference and ordinary), NANT-Y-GLO AND BLAINA (preference), OLD TREBURGETT, PARYS, PESTARENA, PLYN-LIMON, TECOMA, and WEST GOGINAN MINES. State number and price for cash to "Mr. B.," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

WANTED, a PARTNER, or otherwise, to DEVELOPE a LARGE HEMATITE IRON ROYALTY in the well known district of FURNES, NORTH LANCASHIRE. Success certain; ground already proved to be ore-bearing, and must be seen to be appreciated. This is an opportunity rarely to be met with, as the royalty in the district now open is very scarce. Address, "A. Z.," MINING JOURNAL Office, 26, Fleet-street, London.

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NOTICE TO INVESTORS IN MINING SHARES.

THE DIRECTORS OF HOLMBUSH (LIMITED) have resolved during the coming year to PUBLISH MONTHLY REPORTS and DETAILED ACCOUNTS, for the guidance of Shareholders and others desirous of purchasing or Selling Shares in the Mine. They have also resolved henceforth to Sell the Arsenical Ores by Public Tender every month. Particulars of the January sale (about 500 tons) will be shortly announced. Notice is further given that NO MORE APPLICATIONS for SHARES at PAR will be ENTERTAINED. By order of the Board, S. BOOME, Registrar.

Particulars of the mine may be obtained, and specimens of the ores inspected, at the offices of the London agents, Messrs. K. G. LORD and Co., 146, Palmerston Buildings, Bishopsgate-street, London, E.C. The current quotation for the fully paid £1 shares is 20s. to 21s., which will be gradually advanced with the development of the mine and the declaration of dividend.

INVESTMENTS.

SPECIAL SELECTION OF SHARES MOST ADVISABLE TO PURCHASE, soon to be TWICE their PRESENT PRICE, then having to go much higher to reach their value; also, Shares at present paying well on purchase money. Address, Mr. J. H. HITCHINS (who has had 40 years' experience), Gresham House, London, E.C.

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Eberhardt and Aurora Mining Company (Limited).

Notice is hereby given, that the HALF-YEARLY GENERAL MEETING of the shareholders of the Eberhardt and Aurora Mining Company (Limited) will be HELD at the City Terminus Hotel, Cannon-street, London, on THURSDAY, the 4th day of January, 1877, at Two o'clock in the afternoon, for the transaction of the ordinary business of the company—the declaration of a Dividend, and fixing the remuneration of the directors. The Register of Transfers will be closed on the 29th instant, and will continue closed until the 5th January, 1877, both days inclusive. By Order, ALFRED ORITCHETT, Secretary.

Dated this 21st day of December, 1876. Company's Offices, No. 15, Angel court, E.C.

RIO TINTO COMPANY (LIMITED).

FIVE PER CENT. MORTGAGE (SPANISH COUPON) BONDS.

Notice is hereby given that, in accordance with the provisions of the Mortgage and Trust Deed, bearing date the 14th September, 1875, the FUNDS required to meet the Coupon due 1st January, 1877, have this day been DEPOSITED with Messrs. SMITH, PAYNE, and SMITH. Coupons must be left at the offices of the company for examination four clear days prior to payment. By order of the Board, R. J. FENNESSY, Secretary.

Offices of the company, 2, Copthall Buildings, London, E.C., 19th December, 1876.

RIO TINTO COMPANY (LIMITED).

SEVEN PER CENT. MORTGAGE BONDS.

Notice is hereby given that, in accordance with the Mortgage and Trust Deed, bearing date the 23rd April, 1875, the FUNDS required to meet the Coupon due 1st January, 1877, and the Bonds drawn on the 1st instant, for PAYMENT on the 1st January, 1877, have this day been DEPOSITED with the company's bankers in London and in Paris. Coupons for payment in London must be deposited at the offices of the company four clear days previously for examination. Coupons for payment in Paris must be presented at the offices of the Société Générale de Crédit Industriel et Commercial, 72, Rue de la Victoire. By order of the Board, R. J. FENNESSY, Secretary.

Offices of the company, 2, Copthall Buildings, London, E.C., 19th December, 1876.

TANKERVILLE MINING COMPANY (LIMITED).

Notice is hereby given, that the Directors of the Tankerville Mining Company (Limited) have THIS DAY DECLARED a DIVIDEND of FIVE SHILLINGS PER SHARE (free of income tax), PAYABLE on and after Dec. 30. Notice is also hereby given, that the Transfer Books of the company will be closed from the 18th to the 30th of December, both days inclusive. By order of the Board, J. H. MURCHISON, London Manager and Secretary.

8, Austinfriars, London, November 20, 1876.

In the Court of the Vice-Warden of the Stannaries.

Stannaries of Cornwall.

IN the MATTER OF the COMPANIES ACTS, 1862 and 1867, and in the MATTER OF the DUCHY GREAT CONSOLS (LIMITED).—By an Order made by His Honor the Vice-Warden of the Stannaries in the above Matter, dated the 11th day of December instant, on the PETITION of the above-named company, IT WAS ORDERED that the VOLUNTARY WINDING UP of the said company be CONTINUED, but subject to the supervision of this Court, and that James Richards, of Tamar View, in the parish of Tavistock, Devon, Mine Agent, and George Thomas Rait, of Ethelburga House, in the City of London, Public Accountant, the Liquidators appointed by the said company, be continued the Liquidators in the said Voluntary Winding-up of the said company, subject to the supervision of this Court.

WALTER WEBB, 23, Queen Victoria-street, London, E.C. (Solicitor for the Petitioners). F. HEARLE COCK, Truro, Cornwall (Agent for the said Solicitor). Dated Truro, 15th day of December, 1876.

IN THE MATTER OF THE COMPANIES ACTS, 1862 AND 1867, AND OF THE WILLOUGHBY MINING COMPANY (LIMITED).

THE CREDITORS of the ABOVE-NAMED COMPANY are required to SEND their NAMES and ADDRESSES and the PARTICULARS of their DEBTS or CLAIMS to JOSEPH JOHN PYNE, the Liquidator of the said company, at 6, Bishopsgate-street Without, in the City of London, on or before the 20th day of January, 1877, after which day the said Liquidator will PROCEED TO DISTRIBUTE the ASSETS of the said company among the parties entitled thereto, having regard only to the claims and demands of which the said Liquidator shall then have had notice, and to close the said liquidation in manner provided by the said first-mentioned Act. JOSEPH JOHN PYNE, Liquidator. Dated this 22nd day of December, 1876.

THE TAN-Y-RALLT (CARDIGANSHIRE) SILVER-LEAD MINING COMPANY (LIMITED). IN LIQUIDATION. TO BE SOLD, BY PRIVATE CONTRACT, the MINE, PLANT, and MACHINERY of the above Company (Limited), situated in the parish of Llanfihangel Gnewghyn, in the county of CARDIGAN. Particulars may be obtained from me as under, to whom applications for purchase will be received up to Saturday, December 30th instant. JOHN KINGSBURY, Liquidator. 10, Bush-lane, Cannon-street, E.C.

TO CAPITALISTS OR PROMOTERS DESIRING TO MAKE MONEY. TO BE SOLD, a COLLIERY ROYALTY IN NORTH WALES, close to rail or shipping port; several shafts partially sunk; coal fully proved of FOUR BEAMS of good HOUSE and STEAM COALS, in an area of upwards of 400 acres of surface. It adjoins the West Mostyn Coal Field, just successfully launched, where under seams (including Cannel) have been proved in addition to the above; so that eminent engineers state that the available coal in this royalty may be 85 feet thick. Present holder will arrange to sell the entire to an individual or company for what it has cost him, dividing all profit made above, which, even in a normal state of the coal trade, must be large. Certain and safe surveys by eminent Staffordshire and Welsh engineers have already been made. Address, Mr. WATSON, 27, Hamilton square, Birkenhead.

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FOR SALE, a 18-horse power PORTABLE STEAM ENGINE, with link motion reversing gear, ready for delivery. A 25-horse power PORTABLE. An 18-horse power VERTICAL STEAM ENGINE, with link motion reversing gear, also gear to wind and pump. A 9 ft. PAN MORTAR MILL, VERTICAL ENGINE, and BOILER. Apply to BARROWS AND STEWART, ENGINEERS, BARNBURY.

FOR SALE, BY PRIVATE CONTRACT, a 60-inch cylinder CORNISH PUMPING ENGINE, 9 ft. stroke, equal beam, with first piece of main rod attached, with TWO BOILERS of 11 tons each, equal to new. Further particulars will be supplied on application to Mr. W. GATH, Accountant, 2, Devonshire-street, Carlisle.

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ON SALE, ONE PAIR of 18 in. high-pressure HORIZONTAL ENGINES, for winding, fitted with slot link motion. First-class pair of engines. Apply to HENRY PARKINSON, Foundry-street, Bolton.

ON SALE, ONE PAIR of 15 in. HORIZONTAL WINDING ENGINES, with slot link motion. Will be sold cheap. Apply to HENRY PARKINSON, Foundry-street, Bolton.

ON SALE, ONE 25-horse power double cylinder PORTABLE ENGINE, fitted with slot link motion for winding. ONE 20-horse power double cylinder PORTABLE ENGINE. Will be sold cheap, and are in first-class order. Apply to HENRY PARKINSON, Foundry-street Boiler Works, Bolton, Lancashire.

ON SALE, ONE 8-horse power PORTABLE ENGINE, fitted up with winding drum; slot link motion; made by Clayton and Shuttleworth. Price £130. Apply to HENRY PARKINSON, Foundry-street, Bolton.

ON SALE, ONE PAIR of 25 inch. coupled HORIZONTAL WINDING ENGINES, with drums and brake gear. Also ONE PAIR of 22 in. ditto. Will be sold cheap. Apply to H. PARKINSON, Foundry-street, Bolton.

ON SALE, ONE strong well-built condensing BEAM ENGINE by a first-class maker, equal to new; cylinder 35 in. bore, 5 ft. stroke. Can be seen standing, and will be sold cheap. ONE close-built self-contained condensing BEAM ENGINE, stands on independent bed on six columns; cylinder 28 in. bore, 4 ft. stroke. As good as new. Can be seen standing, and will be sold cheap. Apply to HENRY PARKINSON, Foundry-street, Bolton.

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ON SALE, ONE 16 horse power double cylinder PORTABLE ENGINE, for winding. ONE 12 horse power PORTABLE ENGINE. ONE 10 horse power PORTABLE ENGINE. ONE 8 horse power PORTABLE ENGINE. ONE 6 horse power PORTABLE ENGINE. Equal to new, and will be sold cheap. Apply to HENRY PARKINSON, Foundry-street, Bolton.

ON SALE, ONE PAIR of 25 in. horizontal WINDING ENGINES. ONE PAIR of 18 in. horizontal WINDING ENGINES. ONE PAIR of 15 in. horizontal WINDING ENGINES. ONE PAIR of 12 in. horizontal WINDING ENGINES. ONE PAIR of 10 in. horizontal WINDING ENGINES. ONE PAIR of 7 in. horizontal WINDING ENGINES. The above engines are now ready for delivery, and fitted with winding drum and brake gear to each pair of engines. Apply to HENRY PARKINSON, Foundry-street, Bolton.

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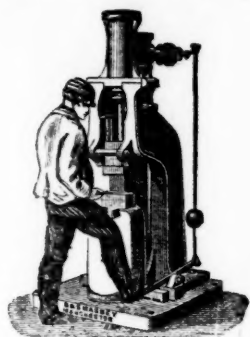
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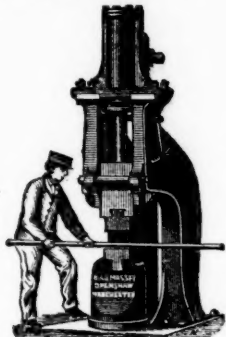
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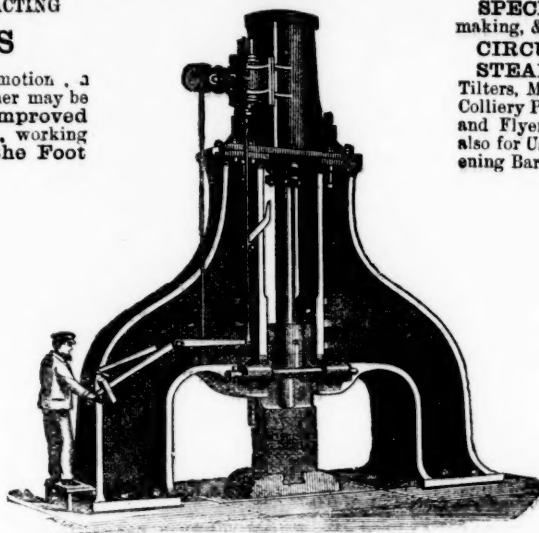
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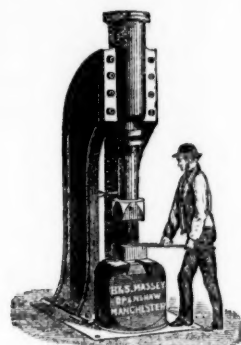
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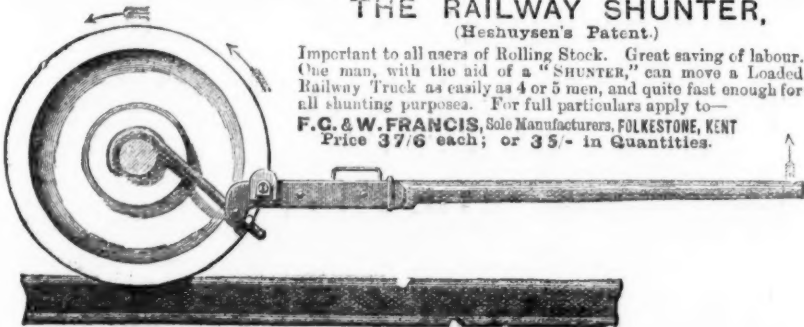
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12000	Bestford United, <i>s, Tavistock</i>	117 6	34 3/4 34 3/4
28000	Betons, <i>s, Devon</i> (77,000 fy. pd.)	1 0 0	24 2/3 24 2/3
10000	Bethel, <i>s, Cardigan</i>	1 0 0	134 3/4 34 1/2
5937	Bine Hill, <i>s, Llandidow</i>	3 5 0	—
3000	Bodidris, <i>s, Denbighshire</i>	1 0 0	134 1/2 134
2000	Bowden Hill, <i>s, Ma</i>	1 0 0	—
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128	Clementia, <i>s, Llanrwst</i>	20 0 0	40 55 45
7500	Cornelack, <i>s, L. Wendron</i>	2 0 0	234 2 3/4
20000	Cwm Dyfod, <i>s, s, Carnarvonsh.</i>	1 0 0	—
10000	Cwm Nant Ddu, <i>s, Montgomery</i>	1 0 0	—
3000	Cwmystwith (New) [51 shares]	4 0 0	—
10000	Denbighshire Consolidated, <i>s</i>	3 0 0	3 234 3
12000	Derwent, <i>s, Durham</i>	45 0	45 1/2 45 1/2
10000	Ding Dong, <i>s, Gwynedd</i>	61 9 6	—
10000	Dubby Bay, <i>s, Durham</i>	0 11 6	34 3/4 34 3/4
512	East Ssset, <i>s, Redruth</i>	77 7 6	15 10 15
5000	East Ssset, <i>s, Craig, s, Redruth</i>	0 0 0	8 6 5 1/2
4000	East Chiverton, <i>s, Porthcubbin</i>	612 0	234 2 3/4
6000	East Goginan, <i>s, Cardigan</i>	2 0 0	2 2 2
6000	East Grenville, <i>s, Camborne</i>	7 8 6	—
6000	East Tywarthale, <i>s, St. Agnes</i>	0 10 0	34 3/4 34 3/4
8000	East Van, <i>s, Llandidow</i>	5 0 0	10 10 10 1/2
20000	Elgar, <i>s, s, Carnarvonshire</i>	1 0 0	134 1/2 134
5000	Frank Mills, <i>s, Christow</i>	5 0 0	34 3/4 34 3/4
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3950	Gwynedd, <i>s, C. Gwent</i>	0 0 0	34 3/4 34 3/4
12000	Glan Clw, <i>s, s, Gwyddelwern</i>	1 0 0	34 3/4 34 3/4
10000	Glan Severn, <i>s, Flintshire</i>	1 0 0	—
14000	Glenroy, <i>s, s, Isle of Man</i>	4 0 0	2 134 2
10000	Glyn, <i>s, Llandidow</i>	2 0 0	234 234 234
12000	Goginan, & Level Newydd, <i>Card., s</i>	2 10 0	—
10000	Gold, <i>s, Merionethshire</i>	1 0 0	—
20000	Goreu, <i>s, s, Carmarthen</i>	0 0 0	134 134 134
10000	Goredale, <i>s, Llanfyllis Co., s, Llanfyllis</i>	1 0 0	3 34 34
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6000	Gt. Wain Eleanor, <i>s, North Bovey</i>	1 0 0	3 2 3
18000	Grosvenor, <i>s, Holywell</i> (21 sh.)	0 7 0	—
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6400	Harwood, <i>s, Durham</i>	0 15 0	1 34 1
6000	Holmbush, <i>s, s, s, Callington</i>	1 0 0	208 218
5000	Hush Elsteded Mines, <i>s, s</i>	2 0 0	—
200	Hush Elsteded Mines, <i>s, s</i>	2 0 0	42 40 42
6000	Kilneth, <i>s, Chace</i>	113 0	34 3/4 34 3/4
21000	Kington Co., <i>s, Stoke Cismeland</i>	1 0 0	134 134 134
12000	Ladywell, <i>s, s, Salop</i>	210 0	134 134 134
12 03	Ditto, 10 per cent. pref. 11. each.	0 5 0	34 3/4 34 3/4
20000	Leadhills, <i>s, Llanarkshire</i>	6 0 0	7 7 6 1/2
2000	Levant, <i>s, St. Just</i>	9 6 0	—
15000	Llanfyllis Cons., <i>s, T. c, ara, Llanil.</i>	1 0 0	134 134
25000	Llanfyllis Cons., <i>s, Montgomery</i>	2 0 0	—
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15000	Llynw Telfy, <i>s, Cardigan</i>	1 0 0	—
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10000	Medlaear Copper, <i>Hayle</i>	1 0 0	—
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4000	Nanty, l, Montgomeryshire*	1	0	0...	—	...
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25000	Nanty, <i>i</i> , Montgomeryshire	1	0	0	—	—	—
25000	Nanty-Ronen, <i>s</i> , <i>i</i> , Cardigan	1	0	0	—	—	—
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12000	Neptune, <i>c</i> , Perranuthnoe	0	5	0	—	—	—
10000	New Beldon, <i>i</i> , Northumberland	1	0	0	—	—	—
3000	New Chiverton, <i>i</i> , Pembranabuloe	6	0	0	—	6%	6%
2000	New Consols, <i>s</i> , <i>a</i> , Stoke Climsand	3	0	0	—	1%	1%
2000	New Dolcoath, <i>c</i> , <i>a</i> , Camborne	3	0	0	—	1%	1%
20000	New Fowle, <i>s</i> , <i>a</i> , Isle of Man.	0	15	0	—	—	—
15000	New Fowle, <i>c</i> , <i>a</i> , St. Blazey	2	19	0	—	2%	1%
4492	New Hendra, <i>c</i> , Brecon	3	0	0	—	1%	1%
10000	New North Pool, <i>c</i> , <i>a</i> , Illogan	3	0	0	—	3%	1%
6400	New Pembroke, <i>c</i> , <i>a</i> , Par Station	5	10	0	—	3%	3%
3200	New St. Agnes, <i>c</i> , St. Agnes	5	0	0	—	5%	5%
4000	New South Merlyn, <i>i</i> , Flint	2	10	0	—	—	—
4000	North Cornwall, <i>i</i> , Cornwall	5	0	0	—	5%	5%
17000	North Laxey, <i>s</i> , Isle of Man.	2	0	0	—	3%	3%
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1000	North Rosewarne, <i>c</i> , Gwlinear	6	2	0	—	—	—
1000	North St. Hilary Wood, <i>c</i> , Redruth	1	0	0	—	1%	1%
5938	North Treaskerby, <i>c</i> , <i>a</i> , Illogan	8	10	0	—	—	—
2000	North Welsh Tigh, <i>c</i> , <i>a</i> , Illogan	3	19	0	—	—	—
6000	Old Talargoch, <i>i</i> , Flintshire	2	0	0	—	—	—
2500	Old Tineroff, <i>c</i> , <i>a</i> , Lelant	4	0	0	—	4%	3%
6000	Oola Hills, <i>s</i> , <i>i</i> , Limerick	5	0	0	—	—	—
12000	Pandora, <i>c</i> , Carnarvon	2	0	0	—	2%	2%
12923	Parys Mountain, <i>c</i> , <i>a</i> , Anglesea	3	0	0	—	3%	3%
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2000	Prideaux Wood, <i>c</i> , Llanvory	5	0	0	—	—	—
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15000	Rookhope, <i>i</i> , Durham	1	10	0	—	3%	3%
6000	Rosewarne United, <i>c</i> , <i>a</i> , Gwlinear	1	10	0	—	—	—
3000	Russell, <i>s</i> , <i>a</i> , Sweeneybridge	0	0	0	—	—	—
6000	Silverdale, <i>s</i> , <i>a</i> , Sweeneybridge	1	0	0	—	3%	3%
4000	Snowbrook, <i>c</i> , <i>a</i> , Montgomery	5	0	0	—	5%	5%
12000	So, Bwydrain, <i>a</i> , <i>i</i> , Llanbadarn	0	10	0	—	—	—

12000	So. Swabian, s, t, Linsbaldmawr.	0 10 0...	—
8 400	South Carn Brea, c, t, Illogan	3 5 0 ..	$\frac{1}{4}$..	$\frac{3}{4}$..	$\frac{1}{4}$..
2002	So. Cornish, s, t, Linsbaldmawr.	0 10 0...	—

4000	South Carr Breck, <i>s</i> , <i>Lincolnshire</i>	0	10	0	—	—
4001	South Carr Breck, <i>s</i> , <i>Lincolnshire</i>	5	5	—	3	3
4003	So. Cwmystwith, <i>s</i> , <i>Cardiganshire</i>	2	0	0	3	3
4006	South Dargen, <i>s</i> , <i>Cardigan</i>	1	10	0	—	—
512	South Dolcoath, <i>s</i> , <i>s</i> , <i>Redruth</i>	12	3	0	13	13
12000	South Lisbarn, <i>s</i> , <i>Cardigan</i>	0	12	4	—	—
13000	South Roman Gravel, <i>s</i>	1	10	0	1	3
4000	South Rosekar, <i>s</i> , <i>c</i> , <i>Camborne</i>	8	10	0	5	4
4000	South Tolcarne, <i>s</i> , <i>c</i> , <i>Camborne</i>	1	9	0	3	3
12000	South Van, <i>s</i> , <i>Montgomeryshire</i>	1	0	0	—	—
4000	South Van, <i>s</i> , <i>Montgomeryshire</i>	36	19	10	15	14
4000	South Wh. Ffrench, <i>s</i> , <i>Illogan</i>	6	14	4	3	3
432	Spearn Moor, <i>s</i> , <i>Pennance</i>	46	17	0	—	—
14	St. Blazey T. (£2 10s. shags)	2	0	0	—	—
4	St. Lawrence, Amal, <i>s</i> , <i>Flintshire</i>	2	0	0	—	—
12000	St. Harmon, <i>s</i> , <i>Montgom</i>	3	0	0	3	3
10	St. Patrick, <i>s</i> , <i>Halkin, Holywell</i>	1	0	0	1	1
4000	Snooce, A.C., (Dert. 12,000, called)	1	0	0	—	—
10	Sunnydale, <i>s</i> , <i>Durham</i>	2	0	0	2	2
3000	Talybont, <i>s</i> , <i>Talybont</i>	1	0	0	—	—
14	Tal-y-llyn, <i>s</i> , <i>Merioneth</i>	1	0	0	1	1
4000	Teesdale, <i>s</i> , <i>Durham</i>	1	0	0	1	1
14000	Treign Valley, <i>s</i> , <i>bar</i> , <i>Bedford</i>	1	0	0	3	3
10000	Temple, <i>s</i> , <i>Cardigan</i>	1	0	0	2	2
12000	Trebreigh Consols, <i>s</i> , <i>St. Ives</i>	0	5	4	3	3
4000	Treleigh Wood, <i>s</i> , <i>Redruth</i>	3	6	0	—	—
447	Treilyn Consols	15	0	0	3	3
12000	Trethelan, <i>s</i> , <i>Crantock</i>	2	0	0	—	—
12501	Trumpet Consols, <i>s</i> , <i>Heleston</i>	1	0	0	—	—
2500	Udd Wood, <i>s</i> , <i>c</i> , <i>Kewynn</i>	4	5	4	3	3
2000	Udd Wood, <i>s</i> , <i>c</i> , <i>Kewynn</i>	3	10	0	3	3
12000	West Aleton, <i>s</i> , <i>Cardigan</i>	1	0	0	1	1
4000	West Banet, <i>s</i> , <i>Illogan</i>	5	8	5	4	4
2000	West Bryn Celyn, <i>s</i> , <i>Flintshire</i>	1	0	0	—	—
12500	West Combmartin, <i>s</i> , <i>North Devon</i>	1	0	0	1	1
3000	W. Craven Moor, <i>s</i> , <i>Pateley Bridge</i>	13	12	0	12	12
5000	West Godolphin, <i>s</i> , <i>c</i> , <i>Breage</i>	1	16	0	3	3
12000	West Goginan, <i>s</i> , <i>Cardiganshire</i>	2	0	0	1	1
15000	West Great Wyny, <i>s</i> , <i>Breage</i>	1	0	0	3	3
10000	West Llanfynydd, <i>s</i> , <i>Montgomery</i>	2	0	0	—	—
2000	West Mary Ann, <i>s</i> , <i>Lamer</i>	4	14	0	3	3
5000	West Mithr, <i>s</i> , <i>Flint</i>	0	3	0	3	3
12000	West Pant-y-Go, <i>s</i> , <i>Flint</i>	1	0	0	—	—
400	West Pateley Bridge, <i>s</i> , <i>Yorkshire</i>	5	0	0	—	—
1403	West Polbreen, <i>s</i> , <i>St. Agnes</i>	3	6	0	—	—
18	West Rosekar, <i>s</i> , <i>s</i> , <i>c</i> , <i>Camborne</i>	0	12	0	3	3
15	West Tankerville, <i>s</i> , <i>Salop</i>	3	0	0	1	1
150	West T. raven, <i>s</i> , <i>c</i> , <i>Gwynnyp</i>	19	0	0	1	1

IRON AND COAL COMPANIES.

WAGON COMPANIES.

MISCELLANEOUS.

b, blende; cl, coal; c, copper; g, gold; l, lead; s, silver; st, steel.

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1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.